# A GLOSSARY OF BOTANIC TERMS

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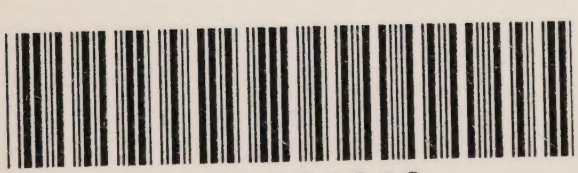
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# A GLOSSARY

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## WITH THEIR DERIVATION AND ACCENT

BY

BENJAMIN DAYDON JACKSON

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"Every other authour may aspire to praise, the lexicographer can only hope to escape reproach."

Dr Samuel Johnson.

# PREFACE

NEARLY thirty-nine years ago Dr M. C. COOKE published his "Manual," which reached a second edition nine years afterwards. Since then no botanic dictionary has been published in Britain, while during the period which has passed since then botany has undergone a momentous change. While systematic botany has been actively prosecuted, the other departments of morphology, physiology and minute anatomy have been energetically pursued by the help of improved appliances and methods of investigation. One result has been a large increase of technical terms, which are only partially accounted for in the various text-books. The time seemed therefore ripe for a new Glossary which should include these terms, and, encouraged by the help of many botanic friends, I have drawn up the present volume. After the work had been partly written, and announced for publication, Mr Crozier's "Dictionary" first came under my notice. I have consequently compared it with my manuscript, and inserted many words which had not come within my knowledge, or had been rejected by me, as will be seen by the acknowledgment in each case. Mr Heinig's "Glossary" only reached London after the early sheets were printed.

The task of selecting what terms should be included in any branch of science offers many difficulties: in the case of botany, it is closely linked on with zoology and general biology, with geology as regards fossil plants, with pharmacy, chemistry, and the cultivation of plants in the garden or the field. How far it is advisable to include terms from those overlapping sciences which lie on the borderland is a question on which no two people might think alike. I have given every word an independent examination, so as to take in all which seemed needful, all, in fact, which might be fairly expected, and yet to exclude technical terms which really belong to another science. Words

in common use frequently have technical meanings, and must be included; other technical words are foreign to botany, and must be excluded. Thus "entire" must be defined in its botanic sense, and such purely geologic terms as Triassic and Pleistocene must be passed by. The total number of rare alkaloids and similar bodies recorded in pharmacologic and chemical works, if included, would have extended this Glossary to an inconvenient size; I have therefore only enumerated those best known or of more frequent mention in literature, or interesting for special reasons. Many words only to be found in dictionaries have been passed by; each dictionary I have consulted contains words apparently peculiar to it, and some have been suspected of being purposely coined to round off a set of terms.

The foundations of the list here presented are A. Gray's "Botanical Text-Book," Lindley's "Glossary," and Henslow's "Dictionary," as set forth in the Bibliography. To these terms have been added others extant in the various modern text-books and current literature, noted in the course of reading, or found by special search. The abstracts published in the *Journal of the Royal Microscopical Society* have afforded many English equivalents of foreign terms. In drawing up definitions, the terms used to denote colour were found to be so discordant that I was compelled to make a special study of that department, and the result will be found in the *Journal of Botany*, xxxvii. (1899) 97-105, where are also noted some unusual colour-terms not brought into the present work.

The total numbers included in this Glossary amount to nearly 15,000, that is, nearly three times as many as in any other previous work in the language. The derivations have been carefully checked, but as this book has no pretension to be a philological work, the history of the word is not attempted; thus in "etiolate" I have contented myself with giving the proximate derivation, whilst the great Oxford dictionary cites a host of intermediate forms deduced from *stipella*. The meaning appended to the roots is naturally a rough one, for to render adequately all that may be conveyed by many of the roots is manifestly impossible when a single word must serve. The accent has been added in accordance with the best discoverable usage; where pronunciation varies, I

have tried to follow the best usage; in some words such as "medullary" I have given the accent as it is always spoken, though all the dictionaries, except Henslow's, accent it as "med'ullary." When words have become thoroughly anglicised, it would have been mere pedantry to accent them otherwise; we say or'ator, not as in Latin, *ora'tor*. The accent does not imply syllabic division, but when the accent immediately follows a vowel, that vowel is long; if one or more consonants intervene, then the vowel is short; thus *ca'nus, cas'sus*, as though they were printed *cā-nus, căs-sus*; in a few instances the pronunciation is also given when the word would otherwise be doubtful as to sound.

The word having grown so much under my hands, it has been my duty to condense the definitions, a difficult matter in many cases, when a longer explanation would have been far easier to draw up. I trust that I have in each case succeeded in setting out the main or central meaning, but many writers have their own modified or restricted meaning of even well-known terms. To still further economise space, words drawn from the same leading word have been grouped into paragraphs, thus obviating the necessity of repeating the leading word with its meaning many times over, and only requiring the additional root to be given; occasionally this has led to the intentional neglect of strict alphabetic sequence. The names of groups of plants have given much trouble; whilst all proposed terms manifestly could not be included, many have become so often quoted as to demand recognition; as a rule I have not admitted groups of even ordinal value, still less of lower rank. Compound terms have been left out when intermediate between the meaning of the primitives; those included seem to require mention on special grounds.

Authors' names in parentheses, following definitions, are those who have been taken as authority for such definition, and when the actual language is used, it is indicated by quotation marks; the authority sometimes coincides with the inventor of the term. Substantives in the headings have been shown by the use of a capital letter, adjectives and other parts of speech by a small letter; exceptions being adjectives drawn from a proper name as "Darwinian," and those which form part of such terms as "Conjoint

Bundle." Greek is quoted in the original characters, Latin in italic, or where otherwise it would be doubtful, it is indicated; this is further explained on the page facing page 1 of the Glossary; the use of small capitals refers the reader to the word so printed for a definition of the term, or to a correlative term.

The Appendixes hardly need any detailed explanation; it will be seen that the Bibliography is a selected list of works chiefly in alphabetic form, arranged chronologically. General dictionaries, and large works in which technical terms form only a small proportion of the whole, have been omitted.

The progress of the work through the press has occupied twelve months; advantage has been taken of this to record new terms which have been published during that time, as well as those contributed by friends from obscure sources, some previously rejected, and a few which had been overlooked; many in the last category are directly due to the defective indexes in certain standard works. No attempt has been made to bring the book beyond the date of 1st January 1900, but I have done my best to include all valid terms up to the first day of this year.

The pleasant task now remains of acknowledging most heartily and gratefully the invaluable help I have derived from a host of friends during the progress of the work. Dr D. H. Scott, F.R.S., not only encouraged me to undertake the labour, but has always been ready to help with his advice, and has read a part of the proofs; Mr A. Gepp, of the British Museum, has read the whole in proof and part in revise; he has spared neither time nor trouble to ascertain the correctness of the derivations and accents throughout, as well as in the special branch of descriptive botany which is under his charge; Professor Hartog, D.Sc., of Cork, has had the entire proof through his hands, and has improved many definitions; Mr H. H. W. Pearson has read nearly all the slip-proof, suggested improvements, and helped in the compilation of the work in many ways. To these four gentlemen I am especially indebted for their kindly undertaking a very troublesome and irksome task.

Other friends at Kew and the British Museum have also generously aided me in response to questions when drafting the manuscript. Mr G. Massee, Mr C. B. Clarke, F.R.S., and Dr

Otto Stapf have constantly been under requisition; Mr I. H. Burkill, Mr C. H. Wright, Mr G. Murray, F.R.S., and Mr N. E. Brown, have given me help with the greatest readiness and kindness; other specialists to whom I have occasionally appealed, and never in vain, are Mr J. G. Baker, F.R.S., Professor I. B. Balfour, F.R.S., Mr L. Boodle, Dr H. T. Brown, F.R.S., Mr F. Darwin, F.R.S., Mr F. Escombe, Professor J. B. Farmer, Mr W. B. Hemsley, F.R.S., Mr R. A. Rolfe, Mr E. S. Salmon, Professor J. W. H. Trail, F.R.S., and Professor H. M. Ward, F.R.S. To each and all my indebtedness for their kindness is great, the value of this Glossary being largely due to their ready aid. This does not exhaust the list of helpers who have kindly answered single questions on special points.

In every volume of similar character to this which I have had to consult, I have found errors, sometimes numerous, occasionally serious. This much larger volume offers a greater chance of error, and it would be vain for me to expect to escape scathless. Still I trust that comparatively few errors will be found; some are likely to be due to accidents, as that on p. 76, where "helicoid" is printed "Delicoid," from the misunderstanding of a mark in the press-proof; the word was correctly spelled in both proof and revise.

I hope that the volume will be useful to the student and the expert; to the former as supplying a concise definition, without pretending to supplant the fuller information of the text-book; to the latter acting as a reminder of some obscure term, or word employed in a special sense. If I have succeeded in this my aim, I shall have reason to be glad at the result of nearly two years' continuous labour, and may look forward at some future time to improve the work.

B. DAYDON JACKSON.

Clapham, 10*th April* 1900.

# EXPLANATION

Headings in **black** type ; substantives are shown by the use of an initial capital letter ; adjectives and adverbs by the use of a small initial letter (exceptions are explained in the preface) ; the sign ~ is used to avoid repetition of the heading ; ‡ was used by Lindley to denote a word which is obsolete or improperly formed, and is used here for undoubtedly obsolete terms.

Latin words are shown by being in *Italic* where practicable, elsewhere by the abbreviation Lat. appended ; other languages are indicated by Fr. for French, Ger. or Germ. for German, Ital. for Italian.

Cross-references in SMALL CAPITALS are employed to spare repeated definitions ; they are usually preceded by the sign of equality, =. When variants do not differ save by the termination, that only is given, but if the accent varies, they are spelled out in full. A few well-known abbreviations are also employed, such as dissyll. for dissyllable, pr. for pronounced, and the like.

# A GLOSSARY OF BOTANIC TERMS

**a**, privative; in Greek compounds = without, as apetalous, without petals; modified into **an-** or **am-** for euphony.

**ab** (Lat.), from; as abnormal, a deviation from rule.

**abax'ial** (*ab*, *axis*, an axle); (1) applied to an embryo which is out of the axis of the seed by one-sided thickness of the albumen; (2) the side of a lateral organ away from the axis.

**abbre'viated**, *abbrevia'tus*, shortened, as when one part is shorter than another; **Abbrevia'tion**, a selection of those most frequently used will be found in the Appendix.

**aber'rant**, *aber'rans* (*aberro*, I go astray), differing from usual structure, departing from the type. **Aberra'tion**, non-typical structure.

**abiet'ic** (*Abies*, a fir-tree), used of certain coniferous products which are not exclusively from *Abies*; ~ **Anhy'dride**, the resin in turpentine; ~ **Ac'id**, a compound of the last with water, forming a large proportion of the constituents of frankincense: **Ab'ietin**, resin from *Abies pectinata*, DC., and **Ab'ietite**, a sugar from the leaves of the same species; **abieti'nus** (Lat., made of fir), applied to cryptogams which (1) grow on firs, or (2) resemble a fir-tree in habit, as *Alsia abietina*, Sulliv.

**Abiogen'esis** (*a*, not; *βίος*, life; *γένεσις*, beginning), spontaneous generation; the assumed origin of living organisms from non-living matter.

**Abjec'tion** (*abjectio*, throwing away), casting off spores from a sporophore.

**abjoint'** (*ab* + joint), to delimit by septa or joints; a hybrid word.

**Abjunc'tion** (*abjunctus*, unyoked), cutting off spores on portions of growing hyphae by septa.

**Ablacta'tion** (*ablacto*, I wean), inarching.

**Ablaquea'tion**, *Ablaquea'tio*, loosening the soil round trees.

**ablast'ic** (*a*, not; *βλαστὸς*, a bud or shoot), applied to parts of a flower or other organ which have not been developed; **ablas'tous**, without germ or bud.

**Abnoda'tion** (*abnodo*, to clear of knots), cutting away knots from trees.

**abnorm'al**, *abnorma'lis* (*abnormis*, irregular), deviating from rule, as when stamens are opposite the petals instead of being alternate.

**aborig'inal** (*ab*, from; *origo*, a source), indigenous; not introduced.

**Abor'tion** (*abortio*, a miscarriage), non-formation or incompletion of a part; **abort'ive**, *aborti'vus*, imperfectly developed, as abortive stamens when filaments only; *abort'iens*, becoming abortive.

**abra'ded**, *abra'sus*, rubbed or scraped off.

**abrupt'**, *abrup'tus*, suddenly ending as though broken off; **abrupt'ly-acu'minate**, having a point arising from a broad extremity; ~ **pin'nate**, a pinnate leaf ending with a pair of leaflets.

**Ab'sciss-lay'er**, a layer of separation, especially with reference to the phenomena of defoliation.

**Abscis'sion** (*abscissus*, cut off), detachment of spores from a sporophore by the disappearance of a connecting zone.

**Absinth'ic**, referring to *Artemisia Absinthium*, Linn.; **Absinth'in**, a bitter principle obtained from the same.

**ab'solute**(*absolu'tus*,perfect,complete), actual, the opposite of relative. The absolute direction of an embryo may be inverted, but erect relatively to the carpel.

**Absorp'tion** (*absorp'tio*, a beverage), the act of imbibing liquids or gases.

**Abstric'tion** (*ab*, from, *strictus*, drawn together), a term which covers both Abjunction and Abscission.

**acalyca'lis** (*α*, not; *κάλυξ*, a cup); (1) having no calyx; (2) having no adhesion to the calyx; **acal'ycine**, **acalyc'inous**, *acalyci'nus*, *acal'ycis*, destitute of calyx.

**acana'ceous** (*ἄκανος*, a thistle-head; + aceous), prickly plants, such as thistles.

**Acanth'a, Acan'thon** (*ἄκανθα*, a thorn), a spine or prickle; **acantha'ceous** (+aceous), (1) armed with prickles; (2) belonging to the natural order Acantha'ceae, the typical genus being *Acanth'us*, Tourn; **acanth'ine**, pertaining to that genus; **acanthocarp'ous** (*καρπὸς*, fruit), having spiny fruit; **acanthocla'dous** (*κλάδος*, a branch), *acanthocla'dus*, with spiny branches; **acanthoph'orous**, (*φέρω*, I bear), *acanthoph'orus*, spine-bearing; **acanthop'odous** (*πούς*, *ποδὸς*, a foot), having petiole or peduncle furnished with spines or prickles; **Acanth'ospheres** (*σφαῖρα*, a sphere), ciliated bodies in the cells of *Nitella*, termed "Stachelkügeln" by the Germans.

**Acaro-doma'tia** (*Acarus*, the typical genus of mites; *δωμάτιον*, a little house), formations on plants adapted to shelter *Acari* when of service to the host.

**acarp'ous** (*α*, not, *καρπὸς*, fruit), destitute of fruit.

**acaulesc'ent**, *acaulesc'ens*, becoming stemless; **acaul'ine**, **acaul'ose**, **acaul'ous**, *acaul'is*, stemless or seemingly so. **Acaulo'sia**, abnormal deficiency of stem.

**access'ory** (*accessio*, something added), an addition or appendage; ~ **Buds**, those additional to the axillary and normal buds, and frequently assuming their function; ~ **Branches**, those which spring from the foregoing; ~ **Cell**, the sister-cell of a guard-cell of a stoma; ~ **Fruits**, parts which are conspicuous but form no part of the pistil, as the enlarged torus of the strawberry, a pseudo-carp; ~ **Gonid'ia**, formations occurring in Mucorini besides the typical gonidia.

**accident'al** = adventitious.

**acci'sus** (Lat.) denotes an end having an acute sinus between two rounded angles.

**Accommoda'tion** (*accommodatio*, an adjustment) Adaptation.

**accresc'ent**, *accresc'ens*, increasing in size with age, as the calyx of some plants after flowering.

**accrete'** (*accre'tus*, grown together), agglutinate, naturally grafted. **Accre'tion**, *Accre'tio*, (1) growing to one another; (2) increase by addition of particles to the outside.

**accumb'ent**, *accumb'ens*, lying against another body; ~ **Cotyle'dons**, those having their edges against the radicle, thus o=.

**acellera'tus** (Lat.), somewhat acerose.

**Acen'ium** = ACHENE.

**aceph'alous**, *aceph'alus* (*α*, without; *κεφαλή*, a head), headless; used for an ovary which is not terminated by the stigma, as in Labiatae.

**acer'ic**, pr. a-ser'-ik, pertaining to the genus *Acer*, the Maple or Sycamore.

**a'cerose, a'cerous**, *acero'sus* (*acer*, sharp), needle-shaped, like the leaves of *Pinus*; **Acero'sae**, a term proposed by A. Braun for the Coniferae.

**acer'vate** (*acervus*, a heap), heaped up; **Acer'vulus** (Lat., a little heap), pl. **Acer'vuli**, small clusters, as of Fungi appearing on bark or leaves.

**acetab'uliform**, *acetabuliform'is* (*Acetabulum*, a cup or vinegar cruet; *forma*, shape), saucer-shaped, used of the fructification of some lichens;

**acetab'ulous**, *acetabu'leus*, *acetabulo'sus* are variations in form of the word ; **Acetab'ulum** (Lat.) the receptacle of some Fungi.

**aceta'rious** (*acetaria*, vegetables with vinegar), relating to salad herbs ; **Ac'etary**, Grew's term for salading.

**ace'tic**, pertaining to vinegar, *acetum* ; ~ **Fermenta'tion**, oxidation of alcoholic liquids, caused by the compound Fungus, popularly known as "Mother of Vinegar," *Bacterium xylinum*, A. J. Brown ; **ac'etose**, *aceto'sus*, sour, acid.

**-a'ceus**, a Latin suffix of resemblance, as *folia'ceus*, leaf-like ; in English it becomes **-aceous**.

**Achae'na**, **Achae'nium**, = ACHENE.

**Achae'nocarp** (*αχανὴς*, not gaping ; *καρπὸς*, fruit), or **Ache'nocarp**, any dry indehiscent fruit.

**Achascophy'tum** (*α*, privative, *χάσκω*, I open, *φυτὸν*, a plant), a plant with indehiscent fruit.

**acheil'ary** (*α*, without ; *χεῖλος*, a lip), wanting a lip, as some Orchids.

**Achene**, pr. a-kēn', *Ache'nium* (*α*, not ; *χαίνω*, I gape), a small, hard, dry, indehiscent fruit, strictly of one free carpel as in the buttercup ; occasionally consisting of more than one carpel as in Composites, in the latter case with adnate calyx. Also spelt **Akene**, **Ake'nium**, etc. ; **Acheno'dium**, a double achene, as the cremocarp of Umbelliferae.

**achlamyd'eous**, *achlamyd'eus* (*α*, without ; *χλαμὺς*, a cloak), destitute of perianth, as in willows.

**Achyrophy'tum** (*ἄχυρον*, chaff ; *φυτὸν*, a plant), a plant with glumaceous flowers, as grasses.

**achromat'ic** (*α*, without ; *χρῶμα*, colour) ; (1) without colour, achroous ; (2) not readily taking colour ; ~ **Spindle**, the thread-like protoplasmic figures in karyokinesis, between the poles ; **Achro'matin**, Flemming's term for the basic substance of the nucleus, less susceptible of staining than the chromosomes, the Nuclein of Strasburger.

**achro'mus**, **ach'roos** (*ἀχροέω*, to be without colour, pale), colourless ; hyaline ; **Achroodex'trin** (+ Dextrin) one of the group of dextrins not coloured by iodine ; *cf.* ERYTHRODEXTRIN, AMYLODEXTRIN.

**Acic'ula** (*acus*, a needle), the bristle-like continuation of the rhachilla of a grass ; **Acic'ulae**, tooth-like processes of the hymenium of certain Hymenomycetous Fungi ; **acic'ular**, *acicula'ris*, slender or needle-shaped ; **acic'ulate**, *acicula'tus*, *aciculi'nus*, superficially marked as if scratched with a pin ; **acicu'liform** (*forma*, shape), needle-like.

**acido'tus** (*ἀκιδωτὸς*, pointed), when branches or organs end in a spine or hard point.

**A'cies** (Lat. edge), the edge or angle of certain stems.

**ac'iform** (*acus*, a needle ; *forma*, shape) = acicular.

**acina'ceous** (*acinus*, a seeded berry + aceous), full of kernels.

**acinac'ifolius** (*acinaces*, a scimitar ; *folium*, a leaf), a fleshy leaf, curved like a scimitar ; **acinac'iform**, *acinaciform'is*, scimitar-shaped.

**acina'rius** (*acinus*, a grape-seed), when a stem is covered with vesicles resembling grape-seeds ; **Ac'ine**, **Ac'inus** (Lat.), a single member of such fruits as the raspberry, a drupel ; formerly used for a bunch of fruit, as of grapes ; **Acinoden'drus** (*δένδρον*, a tree), a plant whose fruit is in bunches ; **ac'inose**, *acino'sus*, like grapes, or of granular bodies resembling them.

**aciphyl'lus** (*ἀκὴ*, a point, *φύλλον*, a leaf), a linear and pointed leaf.

**Aclythrophy'tum** (*α*, without, *κλεῖθρον*, a door, *φυτὸν*, a plant), plants whose seeds are supposed to be naked, without a pericarp.

**acond'ylose**, **acond'ylous** (*α*, without, *κόνδυλος*, a knuckle or finger-joint), said of plants which have no joints or nodes.

**Acon'itin**, the alkaloid derived from monkshood, *Aconitum Napellus*, Linn.

**A'corn**, the fruit of the oak.

**Acotyle'don** (*α*, without, *κοτυληδὼν*, used for seed-lobe), a plant destitute of cotyledons or seed-lobes; Cryptogams and such plants as *Cuscuta;* adj. **acotyle'donous**, *acotyledo'neus.*

**acramphib'ryous** (*ἄκρος*, apex, *ἀμφὶ*, on both sides, *βρύω*, to bud), plants producing lateral as well as apical buds; **Acramphib'rya**, a division proposed by Endlicher to embrace Dicotyledons and Gymnosperms.

**Acroblaste'sis** (*ἄκρος*, apex, *βλαστὸς*, a bud), when the germ-tube of Lichens proceeds from an end of the spore; **acroblas'tic**, Celakovsky's term for the branch of an inflorescence which arises from a terminal bud; **Acrob'rya** (*βρύω*, to bud), plants growing at the point only, as all Acrogens having a distinct axis; adj. **acrob'ryous.**

**acrocarp'ous** (*ἄκρος*, apex, *καρπὸς*, fruit), terminal fruited; a main division of Mosses; **acrod'romous** (*δρόμος*, a course), venation-strands uniting at the apex of the leaf, as in *Plantago*; **acrog'amous** (*γάμος*, marriage), plants producing the egg-apparatus at the summit of the embryo-sac, as in most Angiosperms (Van Tieghem); **Acrog'amy**, may be double, as when the pollen-tube and egg-apparatus are both apical; or partly basigamic, either of male (pollen-tube) or female (egg-apparatus) (*cf.* BASIGAMOUS); **acrog'enous** (*γένος*, race), (1) used of plants growing at the apex, such as **Ac'rogens**, Ferns; (2) produced at the end of a filament, as some fungus spores; **Acrogonid'ium** (*γόνος*, offspring, *εἶδος*, form), a gonidium formed at the apex of a gonidiophore; **acrog'ynous** (*γυνὴ*, a woman), having the stem terminated by female organs, as archegonia; **acrogyra'tus** (*gyratus*, turned away), having an elastic ring at the point (Lindley) as in *Schizaea.*

**Ac'ronus** (perhaps from *ἄκρον*, the highest point), Necker's term for an ovary without a basal disk.

**acronych'ius** (*ἄκρος*, apex, *ὄνυξ*, a claw), curved like the claw of an animal.

**acrop'etal** (*ἄκρος*, apex; *peto*, I seek), produced in a succession towards the apex, as applied to development of organs; the antithesis of basipetal; **Acrosarc'um** (*σάρξ*, *σαρκὸς*, flesh), Desvaux's term for a berry from an ovary with adnate calyx, as the currant; **acroscop'ic** (*σκοπέω*, I see), looking towards the summit; the reverse of basiscopic; **Acrosperm'eae** (*σπέρμα*, a seed), **Ac'rosperms**, those Angiosperms which are presumed to have begun with simple porogamous mode of impregnation; *cf.* PLEUROSPERM; **Ac'rospire** (*σπεῖρα*, a coil), Grew's name for the first sprout of a germinating seed, the extruded radicle; **acrospi'red**, germinated, as in malting; **Ac'rospore** (*σπορὰ*, a seed), a spore formed at the summit of a sporophore or filament; **acrot'onous** (*τόνος*, a cord), the tissue of the pollen-sac in Orchids prolonged to the upper end of the anther.

**Actinench'yma** (*ἀκτίς*, a ray; *ἔγχυμα*, an infusion), cellular tissue formed in a star-shaped manner, as seen in a cross-section of *Juncus;* **actin'ic**, used of certain rays of the spectrum, which have a powerful effect on growth; **Act'inism**, the chemical action of sunlight; **Act'inocarp**, a fruit which is **actinocarp'ic** (*καρπὸς*, fruit), having the carpels or placentas radiating like the spokes of a wheel; **actinomorph'ic**, **-ous**, (*μορφὴ*, shape), having flowers of a regular or star pattern, capable of bisection in two or more planes into similar halves; **Actinomyco'sis**, a disease in the jawbone of man and animals attributed to a Fungus, *Oocardia Actinomycosis*, Trev.;

**actinost'omous** (*στόμα*, a mouth), radiate structure round the ostioles of Lichens and other Cryptogams.

**Actinoph'ryds** (*Actinophrys*, Ehrenb., a genus of Rhizopods), Gobi's term for globes with radially-arranged pseudopodia in *Pseudospora*, a parasite on *Vaucheria*.

**ac'tive**, in a growing condition; not dormant.

**acu'leate**, *aculea'tus* (*aculeus*, a sting or prickle), armed with prickles as the stem of a rose; **acu'leolate**, *aculeola'tus*, somewhat prickly; **aculeo'sus**, decidedly prickly; **acu'leiform**, *aculeiform'is* (*forma*, shape), prickle-shaped; **Acu'leus** (Lat.), a sharp epidermal emergence, a prickle; pl. **Acu'lei**; **Acu'leolus**, a diminutive of the last.

**Acu'men** (Lat., a point), a tapering point; **acu'minate**, *acumina'tus*, having a gradually diminishing point; **acuminifo'lius** (*folium*, a leaf), with acuminate leaves; **acu'minose**, *acumino'sus*, approaching acuminate; **acumin'ulate**, having a small terminal point.

**acutang'ular**, *acutang'ulus* (Lat.), when stems are sharply angular; **acutate'** (*acu'tus*, sharp), slightly sharpened, as at the apex; **acu'te**, *acu'tus*, distinctly and sharply pointed, but not drawn out; **acutiflor'us** (Lat., *flos*, *floris*, a flower), with acute perianth segments; **acutifo'lius** (Lat., *folium*, a leaf), with pointed leaves; **acutilo'bus** (Lat., *lobus*, a lobe), composed of lobes which are acute; **acutius'culus** (Lat.), somewhat acute.

**acyc'lic** (*a*, not; *κύκλος*, a circle), used of flowers whose parts are arranged spirally, not in whorls.

**Adapta'tion** (*adaptatus*, fitted), the means by which an organism adapts itself to changed surroundings.

**adax'ial** (*ad*, to; *axis*, an axle), the side or face next the axis, ventral.

**adducent'ia Va'sa** (*ad*, to; *duco*, I lead), the spirals in tracheids, which spirals were formerly supposed to be vessels.

**Adducto'res**, Hedwig's term for archegonia.

**Adelph'ia** (*ἀδελφός*, a brother); (1) a fraternity; a collection of stamens by their filaments into one bundle; pl. **Adelph'iae**, two or more similar bundles; (2) used by Galton for fraternities in variation; **adelph'ic**, *adelph'icus*; **adelph'ous**, *adelph'us*, having brotherhoods of stamens; **Adelphotax'y** (*τάξις*, order), used by Hartog to express the mutual attraction of spores of *Achyla* and of Pedastreae after extrusion.

**Ade'lome** (possibly from *ἄδηλος*, concealed) = ALBURNUM (Lindley).

**Aden** (*ἀδήν*, a gland), a gland or tubercle: **aden'iform** (*forma*, shape), a hybrid term for gland-shaped; **adenoca'lyx** (*καλύξ*, a cup), where the calyx is studded with glandular spots; **ad'enoid** (*εἶδος*, like), gland-like; ~ **Or'gan**, Williamson's term for the ligule of *Lepidodendron*; **Adenopet'aly** (*πέταλον*, a flower leaf), a term proposed by C. Morren for the transformation of nectaries into petals, or similar structures; **Aden'ophore** (*φορέω*, bear), a stalk supporting a gland; **adenoph'orous**, bearing glands; **adenophyl'lous** (*φύλλον*, a leaf), glandular leaved; **adenop'odous**, *aden'opus* (*πούς, ποδός*, a foot), with the petiole or peduncle glandular; **adenoste'mon** (*στήμον*, a stamen), having glands on the stamens; **ad'enose**, **ad'enous**, glandular.

**Ades'my** (*a*, without; *δεσμός*, a bond), Morren's term for congenital separation of parts normally united.

**Adflux'ion** (*ad*, to; *fluo*, I flow), the attraction by which sap is drawn towards the leaves.

**adglu'tinate**, *adglutina'tus* (*ad*, to, *glutino*, I glue), grown together, accrete.

**adhe'rent**, *adhe'rens* (*adhaereo*, to stick to), the union of parts usually separate; ~ **Verna'tion**, when the bases of Fern-fronds are continuous with the caudex; **Adhe'rence**, **Adhe'sion**, the state of union with

some other organ or part; Goebel restricts it to union of dissimilar parts; *cf.* COHESION.

**Adipocel'luloses** (*adeps, adipis*, fat, + Cellulose), a group of bodies which constitute the cuticular tissues of leaves and fruits; *cf.* CELLULOSE.

**adisca'lis** (*a*, without; *δίσκος*, a quoit), destitute of a disk.

**adli'gans** (*ad*, to; *ligo*, I tie), holding fast or binding, as the aërial holdfasts of ivy.

**Adminic'ulum** (Lat., a prop) = FULCRUM.

**admoti'vus** (*ad*, to; *moveo*, I move), when in germination the albumen remains attached to the sheath of the cotyledon.

**adnas'cent**, *adnas'cens* (*adnascor*, to grow to), growing to or upon something else; **Adnas'cens**; (1) a young bulb, as a "clove" of garlic; (2) a sucker of some Monocotyledons.

**ad'nate**, *adna'tus* (*adnascor*, to grow to), attached the whole length, ~ **Anth'ers** have the lobes attached their entire length to the filament; **Adna'tion**, the state in question; **adnexed'** (*nexo*, to tie), used of the lamellae of some Agarics, which reach the stem, but are not adnate to it; **ad'pressed**, *adpress'us* = APPRESSED; **adscend'ent** = ASCENDENT; **adsurg'ent**, *adsurg'ens* = ASSURGENT.

**aduncate, aduncous** (*aduncus*, hooked) bent or crooked as a hook.

**adust'us** (Lat.), soot-coloured, fuliginous.

**adventit'ious**, *adventit'ius* (*ad*, to; *venio*, I come), applied to plants lately introduced; ~ **Buds**, those produced abnormally, as from the stem instead of the axils of the leaves; ~ **Roots**, those which do not arise from the radicle or its subdivisions, but from other part; **advent'ive** = ADVENTITIOUS.

**ad'verse** (*ad*, to; *verso*, I turn); (1) opposite; (2) facing the main axis or other object; **advers'us** (Lat.), opposite; **adversifo'liate**, *adversifo'lius* (*folium*, a leaf), having opposite leaves.

**Adynaman'dry** (*ἀδυναμία*, weakness; *ἀνήρ, ἀνδρός*, a man), Delpino's term for self-sterility; that is, when a flower does not set seed from its own pollen.

**Aecid'iospore** (*Aecidium*, infra; *σπορά*, a seed), a spore formed in the following: **Aecid'ium** (probably from *οἰκίδιον*, a little house), a sporocarp consisting of a cup-shaped envelope, its interior surface consisting of a hymenium, from whose basidia the aecidiospores are successively thrown off; the name was propounded by Persoon as a genus of Fungi, but it is now regarded as only a form-genus of Uredineae.

**Aecol'ogy** = ECOLOGY or OECOLOGY.

**ae'neus** (Lat. bronze), used for brass-coloured; sometimes for verdigris.

**aequa'lis, ae'quans** (Lat.), equal or equalling; similar in size, uniform; **aequilat'eral**, *aequilatera'lis*, equal-sided, of equal length; **aequiflor'us** (Lat.), with flowers alike in form and character; **aequimag'nus** ‡ (Lat.), equal sized; **aequinoc'tial**, *aequinoctia'lis*, pertaining to the equinox; used of flowers, which open or close at stated hours; **aequivalv'is** (Lat.), having valves of flowers or fruit of similar size; **aequive'nius** (Lat.), all the veins of equal distinctness.

**aë'rating** (*aër*, air) **Roots**, peculiar roots rising out of the mud, covered with a loose, corky tissue, and having large intercellular spaces; **aë'rial**, *aë'rius*, plants (or parts of plants) living above the surface of the ground or water; ~ **Plants**, epiphytes, as *Tillandsia* and many tropical orchids; ~ **Roots**, those which vegetate altogether above the ground; **Aërench'yma** (*ἔγχυμα*, that poured out), Schenk's term for a tissue of thin-walled cells, and large inter-cellular spaces, found in the stems of some marsh-plants, serving for aëration or floating tissue; **Aëro'bium** (*βίος*, life), an organism which thrives only in the presence of air or free oxy-

gen; applied to certain bacteria; **aërobio'tic**, needing air for existence; **Aërobio'sis**, life in atmospheric air; **Aë'rocyst** (*κύστις*, a bag or pouch), the air-bladders of such algae as *Fucus vesiculosus*, Linn.; **Aë'rophyte** (*φυτὸν*, a plant), air-plant, epiphyte; **Aërotax'is** (*τάξις*, arrangement), used by Hartog to express positive stimulus by oxygen to the irritability of zoospores, adj. **aërotact'ic**; **Aërot'ropism** (*τροπὴ*, a turning), the influence of gases on growth and curvature, it is a form of CHEMOTROPISM; adj. **aërotrop'ic**.

**aëru'ginose, aerug'inous,** *aerugin'eus, aerugino'sus* (*aerugo*, the rust of brass), the blue-green colour of verdigris.

**Aesc'ulin**, an alkaloid from the horse-chestnut; *Aesculus Hippocastanum*, Linn.

**Aesthe'sia** (*αἴσθησις*, perception by sense), Czapek's expression to denote the capacity of an organ to respond to definite physical stimuli.

**aes'tival,** *aestiva'lis*, belonging or peculiar to summer; **Aestiva'tion,** *Aestiva'tio*, the manner in which the parts of a flower are folded up before expansion.

**Aete'rio** = ETAERIO.

**Aetha'lium** (*αἴθαλος*, soot), a compound sporiferous body, formed from a combination of plasmodia in Myxogastres; *Ae. septicum*, Fr., is known as "Flowers of Tan"; **aetha'lioid** (*εἶδος*, form), like the last.

**aëthe'os** (*ἀήθης*, unusual), in compounds = unusual; **aëtheogam'ic, aëtheog'amous** (*γάμος*, marriage), synonymous with cryptogamic.

**aethe'reus** (Lat.), aërial.

**Aetiol'ogy** (*αἴτιον*, cause; *λόγος*, discourse), the doctrine of the cause of disease, as of Vegetable Galls; also spelled **Aitiology** and **Etiology**.

**Affin'ity** (*affin'itas*, near alliance), the closeness of relation between plants as shown by similarity of important organs.

**affix'ed** (*affix'us*, fastened to), fixed upon.

**Ag'amae** (*α*, without, *γάμος*, marriage) = Cryptogamae; **agam'ic, ag'amous,** Necker's term for cryptogamous; **Agamogen'esis** (*γένεσις*, origin), asexual reproduction by buds, gemmae, etc.; **Agamophy'ta** (*φυτὸν*, a plant), C. Macmillan's term for protophytes; **Agam'ospore** (*σπορὰ*, a seed), a spore or gonidium produced asexually.

**A'gar,** a gelatinous product from Agar-agar, or Agal-agal, which consists of various marine Algae from tropical Asia; also called "Ceylon Moss" and "Bengal Isinglass."

**Agar'ic Acid** (*Agaricus*, Tourn., a genus of Fungi), found in *Polyporus officinalis*, Fr.; **Agaricic'ola** (*colo*, I inhabit), applied to a parasite on Hymenomycetous Fungi; Henslow prints it as **agaric'olus.**

**agen'ius** ‡ (*α*, without, *γένος*, sex, race) = neuter; **a'genus,** used of cellular Cryptogams, "which are enlarged by the addition of new parts."

**Agged'ula** (derived by Necker from *ἀγγεῖδιον*, a little vessel), the sporangium of Mosses, and of *Puccinia.*

**Ag'geres** (Lat.), banks or rockwork in botanic gardens.

**agglom'erate, agglom'erated,** *agglomera'tus* (Lat. crowded together), collected into a head, as the flowers of Scabious.

**agglu'tinate** (*agglutino*, I glue), glued together, as the pollen-masses of Asclepiads or Orchids; accrete.

**ag'gregate, ag'gregated,** *aggrega'tus* (Lat. assembled), collected together, as the flowers of *Cuscuta;* ~ **Flowers**, those gathered into a head, as *Dipsacus*, but not as in Compositae, which are capitulate; ~ **Fruits**, collection of separate carpels produced by one flower, the product of a polycarpellary apocarpous gynaecium; **Aggrega'tion**, condensation of cell-contents under some stimulus.

**agrar'ian** (*agrar'ius*, pertaining to

the field). H. C. Watson's term for the cultivable portion of Great Britain; ~ **Region**, divided into three ~ **Zones**, the super-, mid-, and infer-agrarian zones.

**agrest'al** (*agrestis*, belonging to the field); (1) Watson's term for plants growing in arable ground; (2) rural generally.

**agricult'ural Bot'any** (*agricultura*, husbandry), that part of economic botany which relates to farm plants.

**Agrostog'raphy** (ἄγρωστις, grass, γραφή, writing), the description of grasses; **Agrostol'ogy** (λόγος, discourse), the botany of grasses.

**agyna'rius** ‡ (α, without, γυνή, a woman); **agyn'icus**; (1) said of stamens which are free from the ovary; (2) pistils wanting, destitute of pistils; **ag'ynous**, monstrous flowers with pistils missing.

**Ai'gret** (Fr. Aigrette, tuft of feathers), the pappus of Compositae; Englished by T. Martyn as **E'gret**.

**aiophyl'lus** (αἰών, eternity, φύλλον, a leaf), evergreen.

**aima**, in Greek compounds = blood-coloured; properly **hæma** (from αἷμα, blood).

**Air-Blad'ders**, intercellular spaces in some Algae, serving as floats; ~ **Cav'ity** = ~ CHAMBERS (2); ~ **-Cells**, ~ **-Chambers**, (1) intercellular spaces occurring in aquatic plants, usually prismatic in form, (2) the intercellular space beneath a stoma; ~ **Passage**, = ~ -CHAMBER; ~ **-Plants**, epiphytes, as Bromeliads and some Orchids; ~ **Pore**, = STOMA; ~ **Sacs**, cavities in the pollen-grains of *Pinus*; ~ **Vessel**, term formerly applied to empty tracheids, etc.

**Akene'**, **Ake'nium**, = ACHENE, ACHENIUM.

**Akine'sis** (α, without, κίνησις, movement), increase without the phenomena of karyokinesis; **A'kinetes**, in green Algae, single cells whose walls thicken and separate from the thallus, corresponding to the chlamydospores of Fungi; immotile reproductive cells, formed without true cell-formation, or rejuvenescence.

**A'la** (Lat. wing), (1) formerly an axil, but now obsolete in that sense; (2) a lateral petal of a papilionaceous flower; (3) a membranous expansion of any kind, as in the seed of Bignoniaceae; (4) employed by Wm. Smith for the marginal processes in *Surirella*; (5) the outer segment of the coronal lobes in some Asclepiads; (6) in Mosses, the **a'lar** cells are those at the basal angle of a leaf.

**Alabas'trum** (Lat. bud), a flower-bud.

**a'lar**, *ala'ris* (*ala*, wing), (1) formerly used for AXILLARIS; (2) ~ **Cells**, *cf.* **Ala** (6).

**alate'**, *ala'tus* (Lat. winged), furnished with an expansion, as a stem or petiole; **alatepinna'tus**, when the common petiole of a pinnate leaf is marginally winged.

**alba'tus** (Lat.), whitened; **Albe'do** (Lat.) whiteness; **Albefac'tion** (*facio*, I make), blanching; **albes'cent**, *albes'cens*, becoming white; **al'bicant**, *al'bicans*, tending to white; *albid'ulus*, *al'bidus*, *albin'eus*, whitish; **Al'binism**, a disease from absence of normal colouring, displaying itself as an **Albi'no**; **albi'nus**, **al'bulus** (Lat.), somewhat white.

**Al'bumen** (Lat., white of an egg), the nutritive material stored within the seed, and in many cases surrounding the embryo. (NOTE. Not to be confounded with animal Albumen.) **Al'bumin**, in plants, the proteids which readily coagulate from their aqueous solutions by the action of heat or acids; **Albu'minoids** (εἶδος, resemblance), nitrogenous organic substances, proteids; **albumino'se**, **albu'minous**, *albumino'sus*, containing albumen, a term restricted to seeds; **Albu'minates**, nitrogenous substances insoluble in water, soluble in dilute acids or alkalis, *e.g.*, gluten of wheat; **Albumo'ses**, similar to albuminates, but soluble in water; common constituents of aleuron.

**Albur'nitas** (*alburnum*, sap-wood), a disease in trees, a tendency to remain soft like the recent wood; **albur'nous**, relating to the sap-wood; **Albur'num**, the outermost and youngest portion of the wood, still permeable by fluids.

**al'bus** (Lat.), dead white, without lustre.

**alcohol'ic Fermenta'tion**, *see* FERMENTATION.

**alector'ioid** (*Alectoria*, Ach., εἶδος, resemblance), filamentous, as the thallus of the genus after which it is named.

**alepido'tus**, ‡ (*a*, not, λεπιδωτὸς, scaly), destitute of scurf or scales.

**Aleu'ron**, or **Aleu'rone** (ἄλευρον, wheaten flour), proteid granules of globulins and peptones, present in seeds, **~Lay'er**, a special peripheric layer in most seeds, especially in grasses; adj., **aleuron'ic**.

**Alex'ine** (ἀλέξω, I ward off), a substance hypothetically assumed to be formed by plants for protection against bacteria; antitoxine.

**Al'gae** (*alga*, seaweed), chlorophyll-containing Thallophytes, which usually grow immersed in water, fresh or marine; known popularly as "Seaweeds," or "Waterweeds"; **al'gal**, relating to Algae; **~-Layer**, the green band of gonidia in the thallus of heteromerous lichens, also styled **~-Zone**; **algi'nus** ‡ resembling a thread-like Alga; **Al'gist** = **Algol'ogist**, a student of Algae; **al'gous** = ALGAL; **Algol'ogy**, (λόγος, discourse), the science of Algae; **Algs**, F. von Mueller's word for Algae.

**A'lien**, used by H. C. Watson for introduced plants which have become naturalised in Britain.

**alif'erous** (*ala*, a wing; *fero*, I bear), having wings; **al'iform** (*forma*, shape), wing-shaped; **alig'erous** (*gero*, I bear) = ALIFEROUS (Crozier).

**alig'ular** (*a* from, *ligula*, strap), Russow's term for that leaf-face in *Selaginella* which is turned away from the ligule and stem.

**Alimo'nia** ‡ (Lat. nourishment) = ascending sap.

**-alis**, Latin termination indicative of belonging to; thus *radic-alis*, belonging to the root, *radix*.

**alisma'ceous** (*Alis'ma*, Dill., + ceous), belonging to the order Alismaceae, of which the genus named is the type.

**Aliz'arine** (Fr. Alizari, madder-root), the colouring matter of the root of madder, *Rubia tinctoria*, Linn.

**Alkachlor'ophyll** (Alkali + CHLOROPHYLL), a presumed constituent of chlorophyll, produced by the action of an alkali; **alkales'cent**, of the nature of an alkali; **Alk'aloids** (εἶδος, resemblance), general term for the organic bases in many plants, markedly medicinal or poisonous, as Morphia, Strychnia.

**allagophyll'ous** (ἀλλαγὴ, a change, φύλλον, a leaf), alternate-leaved; **allagoste'mon**, **allagostem'onous**, when stamens are attached alternately to the petals and the torus.

**allanto'dioid**, applied to ferns which resemble the genus *Allantodia*, R. Br. in habit or fructification.

**allant'oid** (ἀλλᾶς, a sausage, εἶδος, form), sausage-shaped.

**allassoton'ic** (ἀλλάσσω, to vary, τόνος, turgescence), movements of mature organs, caused by augmentation of turgor with diminution of volume.

**allia'ceous**, *-ceus* (*allium*, garlic, + *aceus*), having the smell of garlic or onions; **allia'rius** (Lat.) is a synonym.

**Alli'ance**, a group of Orders, now usually styled COHORT.

**Alliga'tor** (*alligo*, I bind) = FULCRUM.

**alloch'rous**, (ἄλλος, another, χρόα, complexion), changing from one colour to another; **Allocar'py** (καρπὸς fruit), fruiting from cross-fertilized flowers; **Allog'amy** (γάμος, marriage), cross-fertilization; subdivided into GEITONOGAMY, from another flower on the same plant, and KENOGAMY, from another plant of the same species; adj. **allog'amous**.

**Allöol'ysis** (ἀλλοῖος, different, λύσις,

loosing), applied to the mode in which natural diastase acts on the endosperm of the date, and the changes thereby caused.

**allot'ropous** (*ἄλλος*, another, *τροπή*, a turn), MacLeod's term for plants having stores of honey open to all insect-visitors ; **Allot'ropy**, otherwise turned or formed.

**alpes'trine,** *alpes'tris*, strictly applicable to plants growing above the limits of forest growth, on the Alp, but practically synonymous with Alpine ; **alpes'ter** (Lat.) is used by some botanists for the more usual form.

**alphitomor'phous** (*ἄλφιτον*, pearl barley, *μορφή*, form), like barley-meal ; applied to certain fungi.

**alp'igene** (*alpig'ena*, bred in the Alps) = alpine.

**alp'ine,** *alpi'nus*, properly denoting plants belonging to the Alps (*alpes*, mountains), but frequently used in a wider sense, embracing alpestrine, as well as the higher situated plants.

**alsina'ceous** (*Alsine*, Tourn. + CEOUS), used of a petal having a short, but distinct claw.

**alter'nate,** *alter'nus ; alterna'tus, alter'nans*, (1) placed on opposite sides of the stem on a different line ; (2) when between other bodies of the same or different whorls, as in Umbelliferae, where the stamens are alternate with the petals, that is, between them ; **alternipin'nate,** or **altern'ately-pin'nate,** when the leaflets of a pinnate leaf are not exactly opposite each other ; **Alterna'tion,** *Alterna'tio*, the fact of being alternate, ~ of **Genera'tions,** the reproduction by organisms which do not precisely resemble the parent, but the grand-parent, applied especially to the regular succession of sexual and asexual phases, as in Ferns, etc. ; **alter'native,** *alternati'vus*, in aestivation when the perianth segments are in two rows, and the inner so covered by the outer, that each exterior member overlaps the half of two interior members.

**Al'theine,** a principle from the marshmallow, *Althaea*, Tourn., analogous to Asparagin.

**Alt'itude,** *Altitu'do* (Lat. height), used to specify the height above the sea of the vegetation in question.

**aluta'ceous,** *aluta'ceus* (*aluta*, soft leather + CEOUS), (1) the colour of buff leather, or light tan ; (2) leathery in texture, coriaceous.

**Alve'ola** (*alveolus*, a hollow vessel), pl. **Alveolae** ; cavities on the surface, as the pits on the receptacle of many Compositae, honey-combed ; (2) the pores of such Fungi as *Polyporus ;* (3) the perithecia of certain other Fungi ; **Alve'oli,** the pit-like markings on the valves of many Diatomaceae ; **Alve'olar-plasma** (*πλάσμα*, modelled), term used by Strasburger in place of TROPHOPLASM, granular protoplasm; **al'veolate,** *alveola'tus, alveola'ris*, marked as though honey combed.

**Amadou'** (Fr.), (1) the substance of certain Fungi used as tinder, as *Polyporus fomentarius*, Fr. ; (2) as styptic when from the pubescence of the Phanerogam *Melastoma hirta*, Linn.

**Amalthe'a** ‡ (*ἅμα*, together, *ἀλθέω*, I increase), used by Desvaux for an aggregation of dry fruits within a calyx which does not become fleshy, as *Alchemilla*, and *Sanguisorba*.

**Aman'itin** (from *Amanita*, Dill.), (1) the red pigment of the pileus of the Fly-Agaric, (2) the poisonous alkaloid from the same, also written **Aman'itine.**

**ambig'enus** (*ambo*, both, *genus*, race), applied to a perianth whose exterior is calycine, and interior corolline, as *Nymphaea*.

**ambiguiflor'us** (*ambiguus*, doubtful, *flos, floris*, flower), applied by Cassini to flowers of an indeterminate form ; **ambig'uous,** (1) said of an organ when its origin is uncertain, thus the dissepiments of an orange may belong to the axis or the paries ; (2) of a plant when its position is doubtful.

**ambip'arous,** *-rus*, (*ambo*, both ; *pario*,

I bring forth), producing two kinds, as when a bud contains both flowers and leaves, as the Horse-chestnut; **ambisporang'iate** (+ SPORANGIUM), hermaphrodite flowers, otherwise macro- and micro-sporangiate, that is, bearing ovules and pollen-sacs.

**Amb'itus** (Lat. a going round), the outline of a figure, as of a leaf.

**ambleocar'pus** (*ἀμβλόω*, to be abortive, *καρπός*, fruit), when most of the ovules abort, a few only becoming perfect seeds.

**ambros'iacus** (*ἀμβρόσιος*, divine food), possessing a strong scent of *Ambrosia;* fragrant.

**Ambula'crum** (Lat.), a walk in a botanic garden.

**ame'liorating** (Fr., *amélioration*, an improvement) ~ **Plants**, those bacteria which cause nodules on the roots of Leguminosæ.

**Am'ent**, *Ament'um* (Lat. a strap), a catkin, a spike of flowers usually bracteate, and frequently deciduous; **amenta'ceous**, *-ceus* (+ *ceus*) **ament'iform** (*forma*, shape), **amentif'erous** (*fero*, I bear), catkin-bearing; catkin-like; **Ament'ula** (diminutive) the so-called catkins of the male inflorescence in *Sphagnum*.

**ameris'tic** (*α*, not, *μερίστος*, divisible) ~ **Ferns**, are those whose prothalli being insufficiently provided with nutriment are destitute of meristem, and produce antheridia only.

**amethyst'eus, amethyst'inus** (Lat.), the colour of amethyst, violet.

**ametoe'cious** (*α*, not, *μετά*, with, after, *οἶκος*, house), a parasite which does not change its host; the reverse of METOECIOUS.

**Am'ides** (Am[-monia]+ide) certain substances occurring in plants, soluble in water, diffusible, crystallizable, not coagulating on boiling; those of common occurrence are Asparagin, Leucin, and Tyrosin; **Amid'ulin**, soluble starch, existing in small quantity in ordinary starch-grains.

**Ami'doplast** (*πλαστός*, modelled), an error for AMYLOPLAST.

**Amito'sis** (*α*, without, *μίτος*, a web), defined as degenerate mitosis, when nuclear division takes place directly without the phenomena of karyokinesis; adj. **amito'tic**.

**Am'modytes** (*ἄμμος*, sand, *δύω*, I sink in), living in sandy places; **ammoph'ilous**, *-lus* (*φίλεω*, I love), sand-loving.

**Ammo'nia** (Ammon, the Libyan Jupiter, first found near his temple), a pungent gas; the so-called volatile alkali.

**Am'nion, Am'nios** (*ἀμνίος*, foetal membrane), a viscous fluid which surrounds certain ovules in an early stage; **amniot'ic Sac**, = EMBRYO-SAC.

**amoe'boid** (*ἀμοιβαῖος*, interchanging), applied to the jelly-like plasmodium of Myxogastres when in motion, resembling an *Amoe'ba*, a protean-shaped rhizopod; **Amoeboid'eae**, used by Gobi for the lowest forms of plant-life which are destitute of chlorophyll.

**amorph'ous**, *amorph'us* (*α*, without, *μορφή*, form), shapeless, the form not regular or definite; **Amorph'ophyte** (*φυτόν*, a plant), a plant with anomalous flowers.

**Amphanth'ium** ‡ (*ἀμφί*, around, *ἄνθος*, flower), the dilated receptacle of an inflorescence, as in *Dorstenia*; clinanthium; **Am'phiaster** (*ἀστήρ*, a star), the combined nuclear-spindle and cytasters; also for the combined cytasters only (Crozier); **amphib'ious** (*βίος*, life), growing on dry land or in water equally well; ~ **Alterna'tion**, the adaptation of organism, originally of aquatic habit, to subaërial conditions; **amphib'ryous**, *-yus* (*βρύω*, to sprout), growing by increase over the whole surface; **Amphib'rya**, Endlicher's name for Monocotyledons; **amphicarp'ic, -pous**, *-pus* (*καρπός*, fruit), possessing two kinds of fruit, differing in character or time of ripening; **Amphicarp'ium**, an archegonium persisting as a fruit-envelope, after fertilization; **amphicarpog'enous** (*γεννάω*, I bring

forth), producing fruit above ground, which is subsequently buried beneath; *cf.* HYPOCARPOGENOUS; **Amphicotyle'don** (*κοτυληδών*, a hollow), De Vries's term for cotyledons united so as to form a cup.

**amphigae'us, amphige'an** (*ἀμφί*, around, *γῆ*, the earth); (1) plants which are natives of both Old and New worlds; (2) used of flowers which arise from the rootstock; as in *Kraschenininkovia*, Turcz.; **Amphig'amae** (*γάμος*, marriage), plants whose fructification is unknown, possibly of both sexes; **amphigam'eous, amphig'amous**, supposed to be destitute of sexual organs, or where their presence has not yet been ascertained; it has been applied to Cryptogams; **Amphigast'er**, proposed alteration of the following; **Amphigast'ria** (*γαστήρ*, belly), stipular organs in Hepaticæ, which clasp the stem; **amphig'enous** (*γεννάω*, I bring forth), growing all round an object, used of Fungi when the hymenium is not restricted to any particular surface; **~ Castra'tion**, the action of *Ustilago antherarum*, DC., when it mingles the characters of both sexes by developing in each, some of the characters of the other; **Amphimix'is** (*μίξις*, intercourse), sexual reproduction (Weismann); **Amphipy'renin** (*πυρήν*, stone of fruit), the membrane of the pyrenin, the body of the nucleus; **Amphisarc'a** (*σάρξ, σαρκός*, flesh), an indehiscent multilocular fruit, dry without, pulpy within, as a melon; **Amphisper'mium** (*σπέρμα*, a seed), a fruit which is **amphisper'mous**, when the pericarp closely invests the seed and assumes its shape; **Amphithe'cium** (*θήκη*, a case), peripheral layer of cells surrounding the endothecium in the early stage of the development of the moss-capsule; adj. **amphithe'cial: amphit'ropal**, or more correctly **amphit'ropous** *-pus* (*τροπέω*, I turn), said of the ovule when it is curved so that both ends are brought near to each other; **Amphit'rophy**, Wiesner's term for growth when greatest in the shoots and buds on the sides of the mother shoot.

**Am'phora** (Lat. a wine-jar) the lower part of a pyxis, as in Henbane.

**amplect'ant**, *amplect'ans, amplecti'vus, amplex'ans* (Lat.) embracing; **amplex'us**, in Vernation, when two sides of one leaf overlap the two sides of the one above it; **amplex'icaul**, *amplexicau'lis* (*caulis*, stem), stem-clasping, when the petiole-leaf, or stipule, is dilated at the base, and embraces the stem.

**am'pliate**, *ampliа'tus* (Lat.) enlarged; **ampliatiflor'us** ‡ (*flos*, flower), Composites having the ray-florets enlarged, as in the Corn-flower.

**Ampul'la**, (Lat. a bottle), the flasks found on aquatics such as *Utricularia*; **ampulla'ceous**, *-ceus*, **ampul'liform**, *ampullifor'mis*, swollen out in flask-shape, as the corolla in some Heaths.

**Amyg'dala** (*amygdalum*, a kernel), an almond; **amygd'aliform** (*forma*, shape), almond-shaped; **Amyg'dalin**, a glucoside found in the fruit of many Rosaceae; **amyg'daline**, pertaining to or resembling an almond.

**amyla'ceous** (*ἄμυλον*, fine flour + aceous), starchy; **Am'ylase**, an enzyme, the same as DIASTASE; **amylif'erous** (*φέρω*, I bear), starch-bearing; **Am'ylin**, a product of the action of diastase on starch; **Am'ylites**, skeletons of starch-granules composed of amylodextrin (Belzung); **Amylobacte'ria** (*βακτήριον*, a little rod), microbes producing butyric fermentation, ascribed to the action of *Bacillus Amylobacter*, Van Tiegh.; **Amylocel'lulose** (+ CELLULOSE), a supposed constituent of starch-granules; **Amylodex'trin** (+ DEXTRIN) an intermediate in converting starch into dextrin; *cf.* ACHROODEXTRIN; **Amylogen'esis** (*γένεσις*, beginning), the formation of starch;

**amylogen'ic** (*γεννάω*, I bring forth), producing starch ; ~ **Bodies**, LEUCOPLASTIDS ; **Amylohy'drolist** (*ὕδωρ*, water, *λύσις*, a loosing), an enzyme which transforms starch by hydrolysis ; **Amylohydrol'ysis**, the act in question ; **am'yloid** (*εἶδος*, resemblance), analogous to starch ; **Amyloleu'cites** (*λευκός*, white), plastids producing starch - granules ; **Amylol'ysis** (*λύσις*, a loosing), transformation of starch into other bodies, as sugar ; **amylolyt'ic En'zyme**, an unorganised ferment, which breaks up the starch cell-contents into dextrin and sugar ; **Amy'lome**, a term applied to xylem-parenchyma, when it contains starch ; **Amy'lon, Amy'lum**, in composition = STARCH ; **Amy'lum-Bod'y**, a rounded body in a chlorophyll band or plate, which is a centre of starch formation ; ~ **Cen'tres**, Strasburger's term for PYRENOIDS ; ~ **Grains**, or ~ **Gran'ules**, the laminated bodies which are formed of starch as reserve material in plant-cells ; ~ **Star**, a tuber-like organ in *Chara stelligera*, Bauer, which is closely packed with starch, it consists of an isolated subterranean node ; **Am'yloplast** (*πλαστός*, moulded) = LEUCOPLASTID, a colourless granule of protoplasm, which generates a starch - granule ; **amyloplast'ic**, starch-forming ; **Am'yloses** (Amyl, a chemical term + ose), a group of substances of which cellulose and starch are the commonest.

**An'abix**, pl. **Anab'ices** (*ἀναβιόω*, I revive), those vegetative parts of Cryptogams which perish below, but vegetate above, as *Lycopodium*, Lichens, and Hepatics.

**anabol'ic** (*ἀνά*, up, *βολή*, a throw, stroke), adj. of **Anab'olism**, constructive metabolism of the protoplasm, the building up of more complex from simpler substances ; "Baustoffwechsel" of the Germans.

**Anacamp'yla** ‡ (*ἀνακάμπτω*, I bend back), lacerations of the epidermal layer as in some Agarics.

**anacanth'ous** (*αν*, without, *ἄκανθα*, a thorn), without thorns or spines.

**anacardia'ceous**, resembling *Anacardium*, Linn., as to arrangement of fruit, etc.

**Anachore'sis** (*ἀναχώρησις*, a going back), retrograde metamorphosis of an organ or whorl.

**anacrog'ynous** (*αν*, not, *ἄκρος*, apex, *γυνή*, woman), said of Hepatics in which archegonia do not arise at the extremity of the shoot, which continues to grow ; *cf.* ACROGYNOUS.

**anad'romous** (*ἀνά*, up, *δρόμος*, a course), in venation, that in which the first set of nerves in each segment of the frond is given off on the upper side of the midrib towards the apex, as in *Aspidium*, *Asplenium*, etc.

**Anaëro'be, Anaëro'bium**, pl. **Anaëro'bia** (*αν*, without, *ἀήρ*, air, *βίος*, life), an organism able to live in the absence of free oxygen, as many bacteria ; **fac'ultative** ~, organisms which can live as Anaërobes ; **ob'ligate** ~, those which can exist or thrive only in the absence of free oxygen.

**anaëro'bian, -bious, -bic, anaërobio'tic**, adj. ; **Anaërobio'sis**, the state of living without oxygen ; **Anaë'rophyte** (*φυτόν*, plant), a plant which does not need a direct supply of air.

**Anal'ogy** (*ἀναλογία*, proportion), resemblance in certain points, as in form not function, or function not form, as the tendrils of the Pea, *Smilax*, or Vine ; "that resemblance of structures which depends upon similarity of function" (Darwin) ; **anal'ogous**, resembling, but not homologous ; **An'alogues**, structures corresponding to previous definition.

**Anal'ysis** (*ἀνάλυσις*, releasing), (1) the examination of a plant to determine its affinities and position ; (2) the details of the flower, etc., on a botanic drawing.

**anametad'romous** (*ἀνά*, up, + METADROMOUS), in the venation of Ferns, when the weaker pinnules are ana-

dromous, and the stronger are catadromous; **Anamorph'ism** (Crozier), = **Anamorph'osism**, **Anamorpho'sis** (*μόρφωσις*, a shaping), (1) a gradual change of form in a group of plants in geologic time; (2) a similar change in a group now existing; (3) a striking change in form, the result of changed conditions of growth (Crozier); **anandrar'ious**, *-rius*, **an-and'rous** (*αν*, not, *ἀνήρ, ἀνδρὸς*, a man), having no stamens, but with floral envelopes and pistils.

**ananth'erous**, **Ananthe'rum** (*αν*, without, *ανθηρῶς*, flowering), applied to filaments destitute of anthers.

**ananth'ous**, *-thus* (*αν*, without, *ἄνθος*, a flower), wanting the flower; **An'aphase**, **Anaph'asis** (*φάσις*, appearance), the formation of daughter-nuclei in karyokinesis, following the METAPHASIS; **An'aphyte** (*φυτὸν*, plant), the potential independence of every branch or shoot; **An'aplast** (*πλαστὸς*, moulded), A. Meyer's term for LEUCOPLASTID; **Anasar'ca** (*σάρξ, σαρκὸς*, flesh), dropsy in plants; **anastat'ic** (*στάσις*, a standing), reviving, as certain plants after desiccation.

**Anastomo'sis** (*ἀναστομόω*, I form a mouth), (1) union of one vein with another, the connection forming a reticulation; (2) Vuillemin's term for conjugation in *Mucor*, two equal gametes conjugate and are cut off from the parent hypha by a septum.

**Anat'omy** (*ἀνὰ*, up, *τομὸς*, cutting) in botany, the study of structure; **anat'ropal**, more correctly **anat'ropous**, *anat'ropus* (*τροπὴ*, a turn), the ovule reversed, with micropyle close to the side of the hilum, and the chalaza at the opposite end.

**An'bury**, **Am'berry**, a disease caused by *Plasmodiophora Brassicae*, Woron., in Crucifers, the root becoming clubbed.

**an'ceps** (Lat. two-headed), **ancip'ital**, **ancip'itous**, two-edged, flattened or compressed, as the stem of *Sisymbrium anceps*, Cav.

**Anchu'sin**, the colouring matter of *Anchusa tinctoria*, Linn., now referred to the genus *Alkanna*.

**ancis'trus** (*ἀγκίστριον*, a small hook), barbed.

**ander**, **-dra**, **-dro**, **-drum** (*ἀνὴρ, ἀνδρὸς*, a man), in Greek compounds = the male sex; **Androclin'ium** (*κλινὴ*, bed), the bed of the anther in Orchids, an excavation on the top of the column, usually written CLINANDRIUM; **androdioe'cious** (*δὶς*, twice, *οἶκος*, house), used of a species with two forms, one male only, the other hermaphrodite; **andrody'namous** (*δύναμις*, power), of Dicotyledons in which the stamens are highly developed; **Androe'cium** (*οἶκος*, house), the male system of a flower, the stamens collectively; **Androgametan'gium** (*γαμέτης*, a spouse; *ἀγγεῖον*, a vessel), = ANTHERIDIUM, the organ in which the male sexual cells are formed; **And'rogametes**, zoosperms, male sexual cells; **Androgam'etophore** (*φέρω*, I bear), male sexual form of a plant, as in *Equisetum*; **androg'enous** (*γεννάω*, I bring forth), male-bearing; ~ **Castra'tion**, the action of *Ustilago antherarum*, DC., when inciting production of male organs; **Androgonid'ium** (+ Gonidium) = ANDROSPORE; **androg'ynal**, **androg'ynous** - *nus* (*γυνὴ*, woman), (1) hermaphrodite, having male and female flowers on the same inflorescence, as in many species of *Carex*; (2) occasionally used for MONOECIOUS; **androgyna'ris** (Lat.) of double flowers in which both stamens and pistils have become petaloid; **androgyn'icus** ‡ (Lat.), belonging to, or of an hermaphrodite flower; **androgyniflor'us** ‡ (*flos, floris*, a flower), a hybrid term for when the head of a composite bears hermaphrodite flowers; **Androg'ynism**, a change from monoecious to dioecious; **andromonoe'cious** (*μόνος*, alone; *οἶκος*, house), having perfect and male flowers, but no female flowers; **andropet'alous**, *andropetala'rius* (*πέταλον*, a flower leaf),

flowers double, the stamens petaloid, the pistils unchanged; **An'drophore, Androph'orum** (*φέρω*, I bear); (1) a support of a column of stamens, as in Malvaceae; (2) a stalk supporting an androecium; **An'drophyll** (*φύλλον*, a leaf), a male sporophyll, a stamen; **An'drophyte** (*φυτὸν*, a plant), a male plant in the sexual generation; **Androsporan'gium** (*σπορὰ*, a seed; *ἀγγεῖον*, a vessel), sporangium containing **An'drospores**, swarmspores of Oedogoniae, which give rise to Dwarf-males, destined to produce spermatozoids; **an'drous**, staminate, male.

**Anelectrot'onus** (*αν*, without; *ἤλεκτρον*, amber; *τόνος*, stress), the diminished excitation produced on the vital movements of plants by a constant current of electricity from the anode.

**Anem'onin**, an acrid substance from several species of *Anemone*, Tourn.

**anemoph'ilous** (*ἄνεμος*, wind; *φιλέω*, I love), applied to flowers which are wind-fertilized, the pollen being conveyed by the air; **Anemoph'ilae**, wind-fertilized plants; **Anemo'sis**, wind-shake, a disease of timber-trees.

**anfract'uose**, *anfractuo'sus*, **anfrac'tous**, *anfrac'tus* (Lat., a curving), sinuous, as the anthers of gourds; also spirally twisted.

**Angiench'yma** (*ἄγγειον*, a vessel; *ἔγχυμα*, an infusion), vascular tissue of any kind; **angiocar'pic, angiocarp'ous**, *-pus* (*καρπὸς*, fruit), (1) having the fruit invested by some covering which masks it, as in the Cupuliferae; (2) with spores enclosed in some kind of receptacle; a closed apothecium in Lichens; **Angiog'amae**, Ardissone's group for Angiosperms and Gymnosperms; **Angi'olum**, the spore-case of certain Fungi (Lindley); **angiomonosperm'ous** (*μόνος*, one; *σπέρμα*, seed), having only one seed in the carpel; **Angiosperm'æ, An'giosperms**, plants having their seeds enclosed in an ovary; **angiosperm'al**, belonging to the plants classed as Angiosperms; **~ type of Stomata**, characterised by the development of the inner and outer border of their cuticle, the outer border usually considerably thickened; **angios'porous**, used of Cryptogams producing spores in a closed receptacle; **Angiosp'orae**, plants so characterised.

**An'gle**, *An'gulus* (Lat., a corner), in botany not limited to the inclination of two lines, but often refers to the meeting of two planes to form an edge, as in angular stems; **~ of Deviation**, that which a branch or similar organ makes with its axis; **~ of Divergence**; that measured in the cycle between successive members in the same spiral or whorl.

**anguillulaeform'is** (Lat., shaped like a small eel), applied by Koerber to Lichen-spores which are worm-like in shape.

**ang'ular**, *angular'is*, *angula'tus*, *angulo'sus* (*angulus*, a corner), used when an organ shows a determinate number of angles, as the quadrangular stems of Labiatae; **~ Divergence**, in phyllotaxis, is given under ANGLE of divergence; **ang'ulate**, *angula'tus*, more or less angular; **angulinerv'ed**, *angulinerv'ius* ‡ (*nervus*, a nerve), when veins form an angle with the midrib, as in most Dicotyledons; **angulodent'ate** (*dens*, *dentis*, a tooth), having angular teeth (Crozier).

**angustifo'liate, -lious**, *-lius* (*angustus*, narrow; *folium*, a leaf), narrow leaved; **angustisept'al**, *angustiseptatus* (*septum*, a division), having a narrow-partitioned fruit, as the silicle of *Thlaspi*; **Angustisep'tae**, plants so characterised.

**Anhalo'nine**, a poisonous alkaloid from *Anhalonium Lewinii*, Hennings; it resembles Strychnine.

**An'ilophyll**, a product from Chlorophyll after treatment with Aniline, whence the name.

**An'ime**, a transparent resin from *Hymenaea Courbaril*, Linn.

**anisa'tus**, partaking of the scent of Anise, *Pimpinella Anisum*, Linn.

**anisob'rious**, *anisob'rius* ‡ (*ἄνισος*, unequal, *ἔμβρυον*, embryo), a name given to Endogens, from one side being supposed to possess greater developing force than the other, hence only one cotyledon is formed; **anisody'namous**, *-mus*, (*δύναμις*, power) = anisobrious; **Anisogam'etes** (*γαμέτης*, a spouse), sexual cells, showing a difference between male and female; **anisog'ynous** (*γυνή*, woman), with fewer carpels than sepals; **anisom'erous**, *anisomer'icus* (*μέρος*, a part), where the parts of a flower are not all regular, unsymmetrical; **Anisomor'phy** (*μορφή*, shape), change in form of an organ, caused by its position in relation to the horizon of the mother-axis; **anisopet'alous**, *-lus*, (*πέταλον*, a flower leaf), having unequal-sized petals; **anisophyll'ous** (*φύλλον*, a leaf), when the two leaves of a pair are diverse in shape or size; **Ani'sophylly**, used by Krasser for the different forms of leaf-structure due to difference of position, as in aquatic plants, the submerged or floating-leaves; **Anisophy'tes** (*φυτόν*, a plant), formerly used for Muscineae; **anisosep'alous**, *-lus* (SEPALUM, calyx-leaf), the sepals unequal; **anisosta-m'enous** (Crozier), **anisoste'monous**, *-nus* (*στήμων*, a thread) = having stamens of different size; **aniso-stemopet'alus** = anisostemonous; **anisotrop'ic**, **anisotrop'ous**, (*τροπή*, a turn), endowed with different kinds of irritability; **Aniso-trop'ism**, **Anisot'ropy**, the quality itself, as shown in leaves and roots which respectively seek and shun light.

**Anla'ge**, (Ger.) may be variously rendered as rudiment, inception, primordium.

**annex'ed**, *annex'us* (Lat. fastened to), = adnate.

**annot'inous**, *-nus* (Lat. a year old), applied to branches of last year's growth.

**an'nual**, *annua'lis*, *an'nuus* (Lat. lasting a year), within one year; (1) used of plants which perish within that period; (2) of the rings in wood which denote the year's growth; **Annual Ring**, the marks seen on cross-section of wood, which show the respective increment during each year; **~ Shoot**, = ramus annotinus.

**an'nular**, *annular'is*, *annular'ius* (*annulus*, a ring), used of any organs disposed in a circle; **~ Duct**, **~ Vessel**, one in which the secondary thickening has taken place in the form of rings; **an'nulate**, *annula'tus*, *annuliform'is* (*forma*, shape), ring-shaped; **Annula'tion**, a ring or belt (Crozier); **annulat'i-form**, ring-like, as the apex of the thecae of *Schizæa*.

**An'nulus** (Lat. a ring); (1) in Ferns, the elastic organ which partially invests the theca, and at maturity bursts it; (2) in Fungi, a portion of the ruptured marginal veil, forming a frill upon the stipe after the expansion of the pileus; (3) in Mosses, the ring of cells between the base of the peristome or orifice of the capsule and the operculum; (4) in Diatoms, used by W. Smith for a compressed rim of silex within the frustules of such genera as *Rhabdonema*, Kütz.; (5) in Equisetaceae, the imperfectly developed foliar sheath below the fruit spike; (6) the fleshy rim of the corolla in Asclepiads, as the genus *Stapelia*; **~ inferus**, **~ mobilis**, as defined in 1., **~ superus**, = ARMILLA.

**anod'al**, **anod'ic** (*ἀνά*, up, *ὁδός*, a way), in the upward direction following the genetic spiral.

**anom'alous**, *-lus* (*α*, not, *ὅμαλός*, equal), unlike its allies in certain points, contrary to rule; **anomaloe'-cious** ‡ (*οἶκος*, a house), = polygamous; **Anom'aly**, variation from normal character.

**Anomod'romy** (*ἀνομιᾶ*, without law,

δρόμος, a course), venation which cannot be assigned to any special order (Prantl).

**Anophy'ta, An'ophytes** (*ἀνώ*, upward, *φυτόν*, plant), = Bryophyta.

**An'sae** (*ansa*, a handle), the partial leaf stalks of a compound leaf; **an'sulate**, coiled at the apex and then bent over in a loop, as the shoots in some Cucurbitaceae (Crozier).

**Ant-plants**, plants utilized by ants for habitation; see MYRMECOPHILOUS plants.

**antagonist'ic** (*ἀνταγωνιστής*, adversary) **Symbio'sis**, where the symbionts are not mutually helpful or neutral, but hurtful, at least on the part of one.

**An'techamber**, (*ante*, before), the space immediately below the guard-cells of a stoma; **antemarg'inal** (*margo*, edge) used of sori which are a little within the margin; **anteme'dius** ‡ (*medius*, middle) standing before the middle of another body, opposite.

**Anten'na** (Lat. sail-yard) Darwin's term for the slender process of the rostellum in *Catasetum*, borrowed from entomology; **antennaeform'is** ‡ (*forma*, shape) used of the fruit of *Ammi majus*, Linn., the two styles suggesting the antennae of insects.

**anteplacen'tal** (*ante*, before, + PLACENTA) in front of the placentae; *cf.* INTERPLACENTAL; **Anteposit'ion** (*pono*, *positum*, placed) = SUPERPOSITION.

**ante'rior** (Lat. that before) (1) of time, previous; (2) of place, position in front, or turned away from the axes.

**an'tero-poste'rior** (Lat. later), median.

**Anthe'la** (*ἀνθήλιον*, a little flower), the panicle of *Juncus*, where the lateral axes exceed the main axis.

**Anth'emy, Anthe'mia** (*ἄνθέμον*, flower-pattern), a flower-cluster of any kind.

**An'ther, Anthe'ra** (*ἀνθηρός*, flowering). (1) that portion of a stamen which contains the pollen, usually biocular, and sessile, or attached to a filament; (2) an old term in Fungi, for the Antheridium; **~ Cap, ~ Case**, in Orchids, the outer deciduous case or bag, which is virtually the anther minus the pollinia; **~ Dust** = POLLEN; **~ Lobes**, the cells which contain the pollen; **~ Wings**, the horny, lateral expansions of the anther-lobes in Asclepiadeae: **antherif'erous**, *-rus* (*fero*, I bear), anther-bearing; **an'therless**, destitute of anthers, female or neuter flowers; **antherog'enous**, *-nus* (*γεννάω*, I beget), applied to double flowers arising from the transformation of anthers (De Candolle); **an'theroid** (*εἶδος*, like) anther-like; **Antheroma'nia** (*mania*, madness) an inordinate development of anthers.

**An'theridium, Antherid'ium** (*ἀνθηρός*, flowering, *εἶδος*, resemblance); (1) the male sexual organ in Cryptogams, the analogue of the anther in Phanerogams; (2) in Hymenomycetes, an old term for CYSTIDIUM; **Antheridan'gia** (*ἀγγεῖον*, a vessel), microspores of *Marsilea* and allied plants; **Antherid'iophore** (*φορέω*, I bear), a unisexual gametophore, bearing antheridia only, a specialised branch in *Sphagnum* and Hepaticae.

**Antherophyl'ly** (*ἀνθηρός*, flowering, *φύλλον*, a leaf), the virescence and phyllomorphy of anthers; **Antherosporan'gium** (*σπορά*, a seed, *ἀγγεῖον*, a vessel), a synonym for MICROSPORANGIUM; **Antherozo'a Antherozo'ids** (*ζῷον*, an animal, *εἶδος*, resemblance), male motile cells provided with cilia, produced in antheridia.

**Anthe'sis** (*ἄνθησις*, flowering), the expansion of the flower, the time when fertilization takes place.

**Anthesmol'ysis** ‡ (*ἄνθος*, a flower, *λύσις*, a loosing), the metamorphosis of inflorescence (Lindley); **Anthes'mus** ‡ an inflorescence; **anthocarp'ous**, *-pus* (*καρπός*, fruit), fruits with accessories, sometimes termed pseudocarps, as the Strawberry or Pineapple; **Anthochlor'in** (*χλωρος*, pale green), the yellow

colouring of flowers; xanthein; **Anthoclin'ium** (κλίνη, a bed), the receptacle of a Composite; **Anthocy'anin** (κύανος, dark blue), the blue, sometimes red, colouring of flowers; **Antho'dium** (ἄνθωδης, flower-like), the capitulum of the Compositae, by some restricted to the involucrum; **Anthoëcol'ogist** (οἶκος, house, λόγος, discourse), a student of plant-life in its environment; **an'thoid** (εἶδος, resemblance), flower-like, as the male inflorescence of *Polytrichum*; **Antholeu'cin** (λευκός, clear), the so-called colouring matter of white flowers; **An'tholite** (λίθος, a stone), a fossil plant which has the appearance of a flower; **Anthol'ysis** (λύσις, a loosing), the retrograde metamorphosis of a flower; **anthoph'ilous** (φιλέω, I love, applied to plants with flower-visiting insects which aid cross-fertilization. **Anthoph'ilus**, a florist, a cultivator of garden flowers; **An'thophore, Anthoph'orum**, *-us*, (φορέω, I bear), a short stalk which sometimes occurs between the calyx and petals, supporting the interior organs, as in *Silene*; **anthoph'orous**, *-rus*, bearing flowers, floriferous; **Anth'ophyta** (φυτόν, plant), R. Brown's term for Phanerogams; **Anthop'tosis** (πτῶσις, a falling), the fall of flowers.

**An'thos**, *Anthus* (ἄνθος, a flower,) used in Greek compounds; **An'thosperm** (σπέρμα, a seed), "a little coloured concretion scattered in the tissues of certain Fucoids," (Lindley). **Anthotax'is, Anthotax'y** (τάξις, order), the arrangement of the flower; **Anthoxan'thin** (ξανθός, yellow), the colouring matter of yellow flowers.

**anthrac'inus** (Lat.), coal-black.

**Anthrac'nose** (ἄνθραξ, coal, νόσος, disease) the "Birds-Eye Rot" of the Vine, caused by *Phoma ampelinum*, Berk. et Curt.; **An'thrax**, disease in animals due to *Bacillus Anthracis*, Cohn.

**Anthu'rus** ‡ (ἄνθος, flower, οὐρά, tail), a cluster of flowers at the end of a long stalk; **An'thus**, of old authors = COROLLA.

**anti-**, in composition = against.

**An'tiarine**, the active poisonous principle of the upas tree, *Antiaris toxicaria*, Lesch.

**Antibi'onts** (ἀντί, against, βίος, life), antipathetic organisms; **Antibio'sis**, antipathy, a term proposed by Vuillemin.

**anti'cal, anti'cous**, *anti'cus* (Lat. foremost), the fore-part; that most remote or turned away from the axis; Spruce uses antical to denote the upper (dorsal) face of a stem in Hepaticae.

**anticli'nal** (ἀντί, against, κλίνεω, I incline), perpendicular to the surface; **~ Cells**, "parent"-cells which persist in their primitive state without producing antipodal cells or vesicles; Vesque further subdivides them into (*a*) inert, (*b*) active or albuminigenous, (*c*) cotyloid; **~ Planes, ~ Walls**, those which cut the surface or the periclinal walls at right angles; **anticlinan'thous** (ἄνθος, flower), the inferior scaly parts of some Composite flowers; **antid'romal, antid'romous** (δρόμος, a course), the direction of a lateral spiral being different to that of the main stem; **~ Tors'ion**, a twist against the direction of twining; **Antid'romy**, diverse twining; used also when different individuals of the same species display right and left-hand torsion; **antimycot'ic** (μύκης, μύκητος, fungus), fungicidal; **antipathet'ic** (πάθος, suffering), applied to plants which do not easily unite by grafting (Crozier); **antipedunc'ular** (*pedunculus*, a stalk), placed opposite a peduncle; **antipet'alous** (πέταλον, a flower leaf), opposite or superposed to a petal, not alternate, **An'tiphyt** (φυτόν, plant), in alternation of generations, that generation which produces reproductive cells asexually; **antip'odal** (πούς, ποδός, foot) **~ Cells**, three cells at the base of the embryo sac, formed

by division of the primary nucleus, when surrounded by protoplasm and finally cell walls ; **antisep'alous** (*sepalum*, calyx-leaf), opposite to, or upon a sepal, that is, not alternate with it ; **antisep'tic** (*σηπτικὸς*, putrefying), preventing putrefaction.

**Antisperm'y** (*ἀντὶ*, against, *σπέρμα*, a seed), Delpino's term for the coalescence of the fertile divisions of the phyllome into a single fertile body opposed and superposed to the sterile division, in Phanerogams ; in Pteridophytes he terms this phenomenon **Antisporan'gism** (*σπορὰ*, seed, *ἀγγεῖον*, vessel).

**antithet'ic** (*ἀντίθεσις*, opposition), in alternation of generations opposed to homologous, implying that the two generations are different in origin.

**antit'ropal, antit'ropous**, *-pus* (*τροπὴ*, a turn), a synonym of Orthotropal as applied to ovules; **Antitox'in** (*τοξικὸν*, poison), a substance secreted by the plant to protect itself against harmful bacteria ; adj. **antitox'ic** ; **antizym'ic, antizymot'ic** (*ζύμη*, yeast), preventing fermentation.

**an'trorse**, *antror'sus* (*antero-*, before, *versus*, turned towards), directed upwards, opposed to RETRORSE.

**Ant'rum** ‡ (Lat. a cave) = POMUM.

**apag'ynus** ‡ (*ἅπαξ*, once, *γυνή*, woman), monocarpic.

**Apan'dry** (*ἀπο*, without, *ἀνὴρ, ἀνδρὸς*, man), M'Nab's term for fusion of the antheridium with the oogonium ; also applied to the pollen-tube.

**aparaph'ysate** (*α*, without, *παρὰ*, near, *φύομαι*, I am born), destitute of paraphyses ; **aperisperm'ic**, *aperisperma'tus* (+ Perisperm) = exalbuminous.

**Aper'tio** (Lat. unfolding) = ANTHESIS.

**Apertu'ra** (Lat. opening), (1) formerly used of the dehiscence of anthers ; (2) the ostiole of certain Fungi ; **apert'us** (Lat. opened), exposed, naked.

**Apet'alae** (*α*, without, *πέταλον*, a flower leaf), plants wanting petals or corolla ; **apet'alous**, *-lus*, **apet'alose**, without petals, or with a single perianth, as in *Clematis*, where the coloured sepals simulate petals ; **apet'alousness**, being without petals.

**A'pex** ‡ pl. **A'pices** (Lat. summit) (1) an old name for Anther ; (2) the ostiole of Fungi (Lindley) ; (3) the growing point of a stem or root ; (4) the tip of an organ.

**Aphan'isis** (*ἀφάνισις*, disappearance), suppression of parts.

**Aphan'eri**, pl. (*α*, not, *φανερὸς*, manifest), organisms which are not visible without the aids of reagents (Maggi).

**Aphanocy'clae** (*ἀφανὴς*, unseen, *κύκλος*, a circle), Sachs's name for certain plants where the whorls are not very manifest, as Nymphaeaceae.

**Apheliot'ropism** (*ἀπο*, from, *ἥλιος*, the Sun, *τροπὴ*, a turning), turning away from the light, negative heliotropism, as in roots ; adj. **apheliotrop'ic.**

**Aphleb'ia** (*α*, without, *φλέψ, φλεβὸς*, vein), used generically by C. Presl, but by Solms-Laubach for anomalous pinnae on the rhachis of certain fossil ferns, and the existing *Hemitelia capensis*, R. Br.

**Aphotis'tes** ‡ (*α*, without, *φῶτιστὴς*, one who gives light), a plant growing in the absence of light, as a Truffle.

**aphotomet'ric** (*α*, not, *φῶς, φωτὸς*, light, *μέτρον*, measure), applied by Strasburger to phototactic zoospores, which constantly turn the same extremity to the light ; opposed to PHOTOMETRIC.

**Aph'rostase** ‡ (*ἀφρὸς*, froth, *στάσις*, standing), cellular tissue.

**Aph'thae** (*ἄφθαι*, ulcerations in the mouth), the disease known as Thrush, ascribed to *Saccharomyces albicans*, Reess ; **Apthaphy'tes** (*φυτὸν*, plant), the Fungi mentioned above as causing the disease.

**Aphyll'ae** (*α*, without, *φύλλον*, leaf), Lindley's term for THALLOPHYTES ; **aphyll'ous**, *-lus*, **aphyll'ose**, wanting leaves ; **Aph'ylly**, suppression of leaves.

**a'pical**, *apica'lis* (*apex*, *apicis*, summit), at the point of any structure; ~ **Axis**, in Diatoms, the line through the centre of the pervalvar axis in the direction of the raphe, at equal distances from homologous points of the girdle band surfaces, and through the apices; ~ **Cell**, the single cell in many plants which is the origin of all longitudinal growth; ~ **Cone** = PUNCTUM VEGETATIONIS; ~ **Growth**, extension in the length of the axis; ~ **Plane**, in Diatoms, the plane at right angles to the valvar plane, which passes through the pervalvar and apical axes; *cf.* PERVALVAR ~; TRANSAPICAL ~: **apicicircinna'tus** ‡ (*circinnatus*, turned round), ending in a circinnate manner; **apicil'lary**, *apicilla'ris*, inserted on, or pertaining to the summit, as in the dehiscence of the capsule of *Cerastium*.

**Apic'ula**, *Apic'ulum* (Lat. a little point), a sharp and short, but not stiff point, in which a leaf may end; **apic'ulate**, *apicula'tus*, furnished with an apicula.

**A'pilary** (*α*, without, *πῖλος*, hat), suppression of the upper lip in such flowers as *Calceolaria*; **Aplan'ogametes** (*πλάνος*, wandering, *γαμέτης*, a spouse), a non-ciliated gamete, which may or may not be set free; **Aplan'ospores** (*σπορά*, a seed), non-motile cells which are detached for propagation, formed asexually by true cell-formation and rejuvenescence; **aplas'tic** (*πλαστὸς*, moulded), not convertible into organic tissues. **aplasmodioph'orus** (*πλάσμα*, moulded, *εἶδος*, resemblance, *φορέω*, I bear), used of Myxogastres which do not produce plasmodia.

**Aploperist'omi** (*ἁπλόος*, simple, *περὶ*, around, *στόμα*, mouth), Mosses having a single row of teeth in the peristome, or none; adj. **aploperistom'atous**.

**Ap'oblast** (*ἀπο*, up, *βλαστὸς*, a germ), a barren shoot, as from pollard willows; **Ap'ocarp**, *Apocarp'ium*, (*καρπὸς*, fruit), a fruit which is **apocarp'ous**, *-pus*, that is, when the carpels of a Gynaecium are separate; **apocy'tial** (*κύτος*, a hollow), multinucleate and unicellular; **Apoc'yty**, Vuillemin's term for non-cellular tissue in Fungi and Algae, the cells being reduced to several nuclei within the cell-wall.

**apodog'ynus** ‡ (*α*, without, *ποῦς*, *ποδὸς*, foot *γυνὴ*, woman), applied to a disk which is not adherent to the ovary.

**Apoëm'bryony** (*ἀπο*, from, *ἔμβρυον*, an embryo), the embryo-stage suppressed, the oosphere giving rise immediately to the vascular members; **Apog'amy** (*γάμος*, marriage), abnormal budding and production of a bion by a prothallus without sexual intervention; adj. **apog'amous**; **Apog'eny** (*γένος*, offspring), loss of power for sexual reproduction, the function of both male and female organs being destroyed.

**Apogeot'ropism** (*ἀπο*, from, *γὴ*, the earth, *τροπὴ*, a turn), growing away from the earth, as normal stems; **apogeotrop'ic**, negatively geotropic; **Apog'yny** (*γυνὴ*, woman), loss of reproductive power in the female organ; **apopet'alous** (*πέταλον*, a flower leaf), having free petals; polypetalous; **apophyll'ous** (*φύλλον*, leaf) applied to parts of a single perianth whorl when free; **Apoph'ysis** (*φύω*, I grow) (1) the swelling below the capsule of *Splachnum* and other Mosses; (2) also in the cone scale of *Pinus Pinaster*, Soland.; **apoph'ysate**, possessing such an enlargement; **aposep'alous** (*sepalum*, calyx-leaf) having free sepals; **Aposp'ory** (*σπορά*, seed), suppression of spore-formation, the prothallus developing direct from the asexual generation; **direct** ~, is normal but prolonged; **induced** ~, the prothalli produce buds forthwith (Lang); adj. **aposp'orous**; **Apost'asis** (*στάσις*, standing) the monstrous disunion of parts normally united.

**Apostax'is** (*τάξις*, order) the abnormal loss of nutritive or secreted fluids

by bleeding, gumming etc.; **Apost'rophe** (*στρόφη*, turning) the position assumed by the chloroplastids during intense light, along the sides of the cell-walls, instead of the outer surface; **negative ~**, is caused by weak light, as at night, and **positive ~**, by strong light; **apot'ropous** (*τρόπος*, direction) used of an anatropous ovule, which when pendulous has the raphe averse.

**Ap'othece = Apothe'cium** (*θήκη*, a case), an organ of fructification peculiar to lichens, and usually cup-shaped "Shields."

**Appen'dage, Appen'dix** (Lat. an addition), (1) a part added to another, as leaves are appendages to the stem, (2) a name given to processes of any kind, especially those of the perithecia of fungi; (3) in the plural the term **Appen'dices** was formerly applied to suckers, such as the offsets of the Pineapple.

**appen'dent**, *appen'dens* (*appendo*, I hang by), when the hilum is directed towards the upper part of the seed, which is sessile or nearly so on the placenta, as in stone-fruits.

**appendic'ulate**, *appendicula'tus* (*appendicula*, a small appendage), furnished with appendages; **appen'dicled.**

**Appendic'ulum** ‡, diminutive of APPENDIX.

**appense'** (*appen'sus*, weighed), being hung up as a hat is upon a peg, an approach to pendulous (Lindley in Loudon, Encyc. Pl. 1095).

**ap'planate**, *applana'tus* (*ad*, to, *planatus*, made flat), flattened out or horizontally expanded.

**Ap'ple**, a fleshy, inferior, plurilocular, two to five-seeded fruit, technically styled a Pome.

**applica'tus** (Lat. close to, or attached), *applicati'vus*, applied face to face, without folding.

**ap'posite**, *appos'itus* (Lat, applied to), when similar parts are placed close to or side by side; **apposifo'liar** (*folium*, leaf), an error for oppositifolious; **Apposit'ion**, side by side or close to; **~ Theory**, of the growth of the cell-wall, as due to repeated disposition of layers of substance on the internal surface of the original cell-wall.

**appress'ed**, *appress'us*, (*ad*, to, *pressus*, kept under), lying flat for the whole length of the organ; **Appres'sors**, organs of attachment of germinating filaments of parasite to host.

**approx'imate**, *approxima'tus* (*ad*, to, *proximo*, I approach), drawn close together, but not united.

**Aprica'rium** (*apricus*, lying open), the summer habitation of plants in botanic gardens, for exposure to sun and air; **apri'cus** (Lat.), living in open sunny places.

**ap'terous**, *-rus* (*a*, without, *πτερὸν*, a wing), wingless, used of petioles, seeds, and the like; **apyre'nus** (*πυρὴν*, seed), applied to fruit which is seedless, as cultivated varieties of the pineapple, orange, or grape.

**Aquar'ium** (Lat. relating to water), a tank for aquatics in botanic gardens.

**aquat'ic**, *aquat'icus* (*aqua*, water), living in water; *aquat'ilis*, has been defined as living under water; the first category would include *Lemna*, and *Typha*, the second, *Ceratophyllum*, *Chara*, etc.

**aq'ueous**, *aq'ueus*, *aquo'sus* (Lat. watery); (1) indicates some colourless structure, hyaline; (2) having much water in the tissues; **aq'ueous Tissue**, consists of one or more layers of thin walled parenchymatous cells, destitute of chloroplastids, with much watery sap, without interspaces, and acting as water-reservoirs; **aquif'erous** (*fero*, I bear) **Tissue**, is a synonym.

**Ar'abin**, a substance derived from Gum Arabic, deflecting the polarised beam to the left; **Ar'abinose**, a glucose obtained from it, also from cherry-gum; **Arabinox'ylan**, a hemicellulose, found in the bran of wheat and rye.

**arach'noid**, *arach'noideus* (*ἀράχνη*,

spider, or spider's web, *εἶδος*, resemblance), like a cobweb, from an entanglement of fine whitish hairs.

**aralia'ceous**, resembling the genus *Aralia*, or the order of which it is the type.

**ara'neous** ‡, *araneo'sus* ‡, **ara'neose** (*aranea*, a spider), have the same meaning as arachnoid.

**Ar'bor** (Lat. tree), a woody perennial plant, having a bole from which the branches spring; **arbores'cent**, *arbores'cens* (+ escens), attaining the size or character of a tree; **Ar'boret**, a small tree or shrub; **Arbore'tum**, a place assigned for the culture of trees, usually in systematic order; also the title of a book devoted to trees; **arbor'eous** *arbor'eus*, tree-like; **arboric'oline**, **arboric'olous** (+suffix *-cola*, inhabitant), dwelling on trees, as the habitat of Fungi or epiphytes; **ar'boroid** (*εἶδος*, resemblance), a hybrid word for dendroid, tree-like.

**Arbus'cula** (Lat.), a small shrub with the aspect of a tree, as some heaths; **Ar'buscle** is an old term for the same; **Arbus'culus** (Lat.), a small tree; **arbus'cular**, *arbuscula'ris*, shrubby, and branched like a tree.

**arbus'tive**, *arbusti'vus* (Lat. planted with trees), coppiced.

**Arbus'tum** (Lat.), (1) a shrub, a branched woody perennial plant, but wanting a distinct bole; (2) applied to an account of the woody plants of a country, a Sylva.

**Arces'thide, Arces'thida** (*ἀρκευθίς*, *-ίδος*, juniper berry) = GALBULUS.

**archa'ic** (*ἀρχαϊκός*, antiquated), used with reference to a type of a former age, as *Casuarina*.

**Archebio'sis** (*ἀρκή*, beginning; *βίος*, life), origin of life; **Arch'egone** = ARCHEGONIUM; **archego'nial** (*γονή*, race), applied by Tschirch to stomata, whose outer walls of the guard cells are thickened, inner walls only a thin lamella, the guard cells separated in their central part but not at the poles, as in Gymnosperms; **archego'niate**, possessing archegonia; **Archegonia'tae**, plants producing archegonia, applied to Bryophytes and Pteridophytes; **Archego'niophore** (*φορέω*, I bear), the supports of archegonia in certain ferns, outgrowths of the prothalli, also specialised branches on *Sphagnum* with the same function; **Archego'nium**, the female sexual organ in Cryptogams, containing the oosphere, which after fertilization develops within the venter; **Archene'ma** (*νῆμα*, a thread), term proposed by C. Macmillan for gametophytic structures in Thallophytes; **Arch'espore, Archespor'ium** (*σπορά*, a seed), the cell or cells from which the spores are ultimately derived as in the pollen sac, or its homologue; **archespor'ial**, belonging to the same; **~ Cells**, the first eight cells in spore-formation **~ Pad**, Bower's term for a mass of cells developing beneath the sporogenous tissue in certain Pteridophytes; **Arch'etype** (*τύπος*, a type), an original simple type; restricted to a series of forms from the simplest to complicated, with common type of structure and phylogenetic connections; **Arch'icarp** (*καρπός*, fruit) in ascomycetous Fungi, the beginning of a fructification, the cell or group of cells fertilized by a sexual act; **Archichlamyd'eae** (*χλαμύς*, *-υδος*, a mantle), a term to include the Polypetalae and Incompletae of Phanerogams.

**arch'ing**, curved like a bow.

**Arch'isperm** (*ἀρχή*, beginning; *σπέρμα*, seed), (1) another name for Gymnosperm, from their presumed antiquity; (2) Boulger's term for structures formed before fertilization, or at an early stage in the macrospore; **Archistrep'tes** (*στρεπτός*, twisted), the principal spirals formed in phyllotaxis.

**Arch'oplasm** (*ἀρχός*, chief; *πλάσμα*, moulded), Boveri's term for KINO-

PLASM; adj. **archoplas'mic**; ~ **Sphere** = achromatic spindle.

**arct'ic**, a term applied by H. C. Watson to a British region, comprising three zones, styled **super-**, **mid-**, and **infer-arctic** zones, relating to plants growing above the limits of cultivation.

**arc'uate**, *arcua'tus* (Lat.), bent like a bow, curved; **arcua'to-areola'tus**, divided into spaces by curves; ~ **contort'us**, forming a depressed spiral, as in some legumes.

**Ardell'a** (*ἄρδω*, I sprinkle), small apothecia of certain lichens, as *Arthonia*, seemingly dusty.

**A'rea** (Lat., a space), (1) a bed in botanic gardens; (2) in Diatoms, the surface of a valve when circular and destitute of a stauros; (3) ‡ the receptacle of certain Fungi (Lindley).

**arena'ceous**, **arena'rious**, *arena'rius*, *areno'sus* (*arena*, sand), growing in sandy places.

**Are'ola** (Lat., diminutive of AREA); (1) a space marked out on a surface; (2) a small cell or cavity; (3) a tessellation in the thallus of some Lichens; **ar'eolar**, **ar'eolate**, *areola'tus*, marked with areolae, divided into distinct spaces; **Areola'tion**, in Mosses, the arrangement of the cells.

**arg'entate**, *argent'eus* (Lat., silvery), silvery as to tint and lustre; **argenta'tus** (Lat.), silvered.

**argilla'ceous**, *-ceus* (Lat.), clayey, growing in clay, or clay-coloured; **argillo'sus** (Lat.), living in clayey places.

**arg'os**, in Greek compounds = white; in Latin, *candidus*.

**argute'**, *argu'tus* (Lat.) sharp, as *argute'-serra'tus* sharply serrate.

**arg'yros**, in Greek compounds = silvery; Lat., *argenteus*.

**arhi'zal**, *arhi'zus* (*α*, without; *ῥίζα*, a root), rootless, wanting true roots; **Arhizoblas'tus** ‡ (*βλαστὸς*, a germ), an embryo which has no radicle.

**Ar'icine**, an alkaloid from cinchona bark, obtained from Arica, in Chili.

**ari'nus** (*ἄρρην*, male), Necker's suffix to words enumerating stamens, instead of the Linnean -androus.

**A'ril**, **Arill'us** (Fr., arille), an expansion of the funicle, arising from the placenta, and enveloping the seed, mace is the aril of the nutmeg; **ar'illate**, *arilla'tus*, possessed of an aril; **arilliform'is** ‡ (*forma*, shape), bag-shaped; **A'rillode**, **Arillo'dium**, a false aril, a coat of the seed, and not arising from the placenta.

**Aris'ta** (Lat.), an awn, the beard of corn; **arist'ate**, *arista'tus*, awned; **aris'tulate**, *aristula'tus*, bearing a small awn.

**aristolochia'ceous**, resembling the genus *Aristolochia*, Tourn.

**Ar'ma** (Lat.), **Ar'mature**, any kind of defence, as prickles or thorns; **armed**, bearing thorns or similar defence.

**armenia'ceous**, *armen'iacus*, (1) apricot-coloured, a dull orange, named from *Prunus Armeniaca*, Linn.; (2) a native of Armenia.

**Armill'a** (Lat., bracelet), the frill of the stipe of Agarics left attached on the expansion of the pileus, at first it forms a covering of the hymenium.

**Arnat'to**, also written, **Arnotto** and **Annotto**, the red colouring matter from the pulp of the fruit of *Bixa Orellana*, Linn.

**Aro'ma** (Lat., spice), the perfume of a plant; **aromat'ic**, *-cus*, possessing a spicy smell or taste.

**arrect'**, *arrect'us* (Lat. set upright), stiffy erect.

**Arrest'**, **sporal**, see SPORAL ARREST.

**arrhi'zous** = ARHIZOUS, etc.

**Ar'row-head'ed**, ~ **shaped**, barbed like an arrow, sagittate.

**arth'onoid**, of the form or consistence of the apothecia in the genus *Arthonia*, Ach.

**Arth'rospore** (*ἄρθρον*, a joint, *σπορὰ*, a seed), one of spores like a chain of beads, formed by fission; **arthrospor'ic**, **arthrosp'orous**, applied to Schizomycetes, in those species which have no endogenous spores

formation ; **Arthrosterig'mata** (*στήριγμα*, *-ατος*, a prop.), jointed sterigmata in some Lichens, made up of rows of cells from which spores are abstricted.

**Art'icle**, *Artic'ulus* (Lat.), a joint ; **artic'ulated**, *articula'tus*, jointed, separating freely by a clean scar, as in leaf-fall ; **Articula'tion**, a joint, popularly applied to the nodes of grasses.

**Art'ifact** (*ars*, art, *factus*, made), a substance not naturally existing, but resulting from laboratory treatment ; **artific'ial**, *artificia'lis* (Lat., according to rules of art) applied to any scheme of classification which is based on one set of characters, as opposed to a natural scheme, which takes all characters into account.

**artiphyll'ous**, *-lus* (*ἄρτι*, forthwith, *φύλλον*, leaf), used of nodes which bear manifest buds.

**arundina'ceous**, *arundina'ceus*, reed-like, having a culm like tall grasses ; **arundin'eous**, reedy, abounding in reeds.

**arven'sis** (*arva*, arable land), applied to plants of cultivated land, especially of ploughed fields.

**Asafoet'ida** (aza, Persian for mastic, *foetidus*, stinking), a gum-resin, yielded by *Ferula Narthex*, Boiss., and other allied Umbelliferae, of a persistent alliaceous odour and taste.

**As'arine**, a crystallised substance from *Asarum europaeum*, Linn., resembling camphor.

**Ascell'us** (1) diminutive of ASCUS ; (2) the spores of certain Fungi (Lindley).

**ascend'ent**, *-ens*, **ascen'ding** ; (1) directed upwards, as the stem ; the ascending axis is oblique at first, then erect ; (2) opposed to descending.

**-ascens**, a suffix, denotes a tendency towards something, as *ciner-ascens*, becoming ash-coloured, *cinereus*.

**ascidia'tus** (Lat.), furnished with ASCIDIA ; **Ascid'ium** (*ἀσκίδιον*, a little pitcher), pl. **Ascid'ia**, (1) the pitcher of *Nepenthes* etc., the metamorphosed lamina of the leaf, become tubular, usually with a lid, which is a development of the apical portion of the leaf ; (2) the asci of certain Fungi ; **ascid'iform** (*forma*, shape), pitcher-shaped.

**ascif'erous** (*ἀσκός*, a wine-skin, *fero*, I bear), bearing asci ; **ascig'erous** (*gero*, I produce) = ASCIFEROUS ; **As'cocarp** (*καρπός*, fruit), the sporocarp of Ascomycetes producing asci and ascospores ; its three kinds are termed APOTHECIUM, PERITHECIUM and CLEISTOCARP ; **As'cocysts** (*κύστις*, a bag), erect sac-like secreting cells on the creeping filaments of *Ascocyclus* ; **ascog'enous** (*γεννάω*, I bring forth), producing asci, asciferous ; **As'cogone, Ascogo'nium** (*γονή*, race), a synonym of ARCHICARP.

**Ascoli'chenes**, Lichens producing asci.

**Asc'oma** (*ἀσκός*? a wine-skin) Wallroth's term for Receptacle and Hymenium of Fungi ; **Ascomyce'tes** (*μύκης*, fungus), Sachs's name for a large group of Fungi, forming ascospores and stylospores.

**Ascop'ora** (deriv.?) sporangia of certain Fungi (Lindley).

**Asc'ophore** (*ἀσκός*, wine-skin ; *φορέω*, I carry), the ascus-bearing hyphae within an ascocarp ; **ascoph'orous** ascus-bearing ; **Ascoph'yses** (*φύω*, I make grow), the hyphae which constitute the ascogenous cushion in *Chaetomium* ; **As'cospore** (*σπορά*, a seed), a spore produced by an ascus, sometimes termed sporidium or sporule ; **As'cus**, pl. **As'ci** (pr. as'si), a large cell, usually the swollen end of a hyphal branch, in the ascocarp of which normally eight spores are developed ; **~Appara'tus**, a portion of the sporocarp, comprising the asci and the ascogenous cells ; **~ suffulto'rius**, Corda's term for BASIDIUM.

**ascy'phous** (*α*, without, *σκύφος*, a beaker) without SCYPHI ; **asep'tate** (*septum*, an enclosure), without partitions or cross-divisions ; **asep'-**

**tic** (*σηπτικός*, putrefying), not liable to become rotten; **asex'ual** (*sexualis*, pertaining to sex), destitute of male or female organs, neuter; **~Genera'tion**, in alternation, that generation which produces spores asexually, but is itself the product of a sexual act; thus, in Ferns, the full-grown form is the asexual form or sporophyte, the prothallus the sexual form or gametophyte.

**Ash**, the mineral residue of plants after complete combustion.

**Asim'ina** = ASSIMINUM.

**Aspar'agi** (*ἀσπάραγος*, *asparagus*), formerly used for TURIONES or suckers, young shoots emerging from the rootstock under ground, and at first bearing scales only, as in *Asparagus*; **Aspar'agin**, a commonly occurring amide, which was first obtained from *Asparagus officinalis*, Linn., hence its name; **asparag'inous**, applied to plants whose young shoots are eaten as asparagus.

**as'per** (Lat. rough), **as'perate**, **as'perous**, rough with hairs or points.

**aspergill'iform**, *aspergilliform'is* (*aspergillum*, holy-water brush, *forma*, shape), tufted, brush-shaped as the stigmas of grasses; **Aspergill'in**, pigment of the spores of *Aspergillus niger*, Van Tiegh., now known as *Sterigmatocystis nigra*, Sacc.

**asperifo'liate**, **asperifo'lious** (*asper*, rough, *folium*, leaf), rough leaved, as *Borrago officinalis*, Linn.; **Asper'ity** (*asperitas*), roughness.

**Asporomyce'tes** (*a*, without, *σπορά*, a seed, *μύκης*, fungus), Marchand's name for Fungi imperfecti.

**as'plenoid** (*Asplenium*, *εἶδος*, resemblance), like the Fern genus, *Asplenium*.

**asperm'ous** (*a*, without, *σπέρμα*, seed), seedless.

**Assimila'tion**, *Assimila'tio* (*assimulo*, I make like), the process by which extraneous matter, crude food, is converted into plant substance; constructive metabolism; used especially for the formation of organic substance from carbon dioxide and water by green plants in sunlight.

**asp'erous** (*asper*, rough), scabrous, harsh to the touch.

**Assim'inum** (Fr. Assiminier, a name of *Asimina triloba*, Dun.), Desvaux's name for SYNCARPIUM.

**Associa'tions**, **Plant**; term proposed to supersede Plant Formations or Plant Societies; Dan. Plantesamfund, Ger. Pflanzenverein.

**Assumen'ta** (pl. of *assumentum*, a patch), the valves of a siliqua.

**assur'gent**, *assur'gens* (*ad*, to, *surgo*, I rise), rising upward; ascending.

**Astath'e** ‡ (*ἀσταθής*, unstable), "a substance supposed by Harting to lie between the outer and inner lining of a cell" (Lindley).

**Aste'ly** (*a*, without, *στήλη*, pillar), destitute of a stele, or axial cylinder of tissue, *cf.* SCHIZOSTELY; adj. **aste'lic**.

**Ast'er** (*ἀστήρ*, a star), used in composition for star-shaped structure as in DIASTER, etc.; **ast'eroid** (*εἶδος*, resemblance), (1) star-shaped; (2) like the genus, *Aster*, Tourn.

**ast'ichous**, *as'tichus* ‡ (*a*, without, *στίχος*, row, line), not arranged in rows.

**astip'ulate** (*a*, without, + STIPULA) = EXSTIPULATE.

**Astig'matae** (*a*, without, + STIGMA), Van Tieghem's name for the ARCHEGONIATAE; *cf.* STIGMATAE.

**astom'atal** (*a*, without, + STOMA), wanting stomata; **ast'omous** *ast'omus* (*στόμα*, mouth), not having an orifice.

**Astrocen'ters** (*ἀστήρ*, a star, *centrum*, centre), C. Macmillan's term for the bodies variously known as Attraction-spheres, Directive spheres, Tinoleucites, etc.; **Astrosclе'reids** (*σκληρός*, hard) thick-walled star-shaped cells occurring in the leaves of *Camellia*, and frequently in bark amongst the surrounding parenchymatous cells (Tschirch); **Ast'rospheres** (*σφαῖρα*, a sphere), Strasburger's term for ASTROCENTERS.

**asymmet'ric, asymmet'rical** (*a*, not, *σύμμετρος*, symmetric); (1) irregular in outline or shape; (2) used of a flower which cannot be divided in any vertical plane into two similar halves; (3) dissimilarity of the number of the members in calyx, corolla or genitalia.

**asyngam'ic** (*a*, not, *σὺν*, together, *γάμος*, marriage), used of plants prevented from intercrossing by their flowering at different times.

**At'avism** (*atavus*, an ancestor), ancestral resemblance, reversion to an older type.

**ataxinom'ic** (*a*, not, *τάξις*, order, *λόγος*, discourse), teratologic, abnormal structures not represented among plants in a normal condition, as Fasciation, Chloranthy, etc.

**a'ter** (Lat.), pure, lustreless black; in composition, **atro-**.

**athal'amous** (*a*, without, *θάλαμος*, bride-chamber), said of Lichens without apothecia on their thallus.

**athall'ine** (*a*, without, *θαλλὸς*, young shoot), without thallus.

**Ath'era** (*ἀθήρ*,-*έρος*, beard of corn), in Greek compounds = awn or stiff bristle.

**Atlant'ic** type of Distribution, Watson's term for British plants which occur most frequently towards the west of Great Britain.

**A'tom** (*a*, not, *τέμνω*, I cut), defined by Nägeli as the ultimate particle of a chemical element; in botanic parlance it means the smallest divisable portion of any substance.

**Atomogyn'ia** (*ἀτομὸς*, cannot be cut, *γυνὴ*, woman), the elder Richard's name for the ANGIOSPERMIA of Linnaeus.

**Atracten'chyma** ‡ (*ἄτρακτος*, a spindle, *ἔγχυμα*, that poured in), prosenchyma, tissue of fusiform cells.

**atramenta'rius** (*atramentum*, inky fluid), inky; black.

**atra'tus** (Lat.), garbed in black; blackened, as in some species of *Carex*, the apex of the glumes being darkened; **atric'olor** (*color*, colour), inky-black.

**at'ropal**, preferably **at'ropous** (*a*, not, *τροπὴ*, a turn), a synonym of ORTHOTROPOUS; applied to the ovule.

**At'rophy** (*a*, without, *τροφὴ*, nourishment), wasting away, abortion or degeneration of organs; **Atrophy'tes** (*φυτὸν*, a plant), those Fungi which cause atrophy of important organs of the host-plant.

**At'ropine**, a poisonous alkaloid obtained from *Atropa Belladonna*, Linn.

**atro-purpu'reus** (Lat.), black-purple, the colour of Sweet Scabious, *Scabiosa atropurpurea*, Linn.; ~ **-violaceus** (Lat.), very dark violet; ~ **-virens**, ~ **-viridis** (Lat.), dark or blackish green.

**atten'uate**, *attenua'tus* (Lat. thinned), narrowed, tapered.

**Att'ire**, Grew's term for stamens and pistils.

**Attrac'tion-spheres**, the same as **Attrac'tive-spheres**, CENTROSPHERES, or Tinoleucites.

**a'tus**, a suffix indicating the presence of an organ, thus: foli-atus, having leaves.

**auc'tus** (Lat. increased); (1) enlarged after flowering, accrescent; (2) augmented by an addition.

**Aug'ment-Cells**, a modification of an auxospore in Diatoms, after division becoming transformed into daughter-cells, and the starting-points of new generations; **Augmenta'tion**, increase beyond the normal number of parts.

**Aulae'um** ‡ (Lat., a curtain), used occasionally for COROLLA by Linnaeus.

**Aulog'amae** (*αὐλὸς*, a tube, *γάμος*, marriage), employed by Ardissone for Muscineae.

**Aul'ophyte** (*αὐλὴ*, abode, *φυτὸν*, a plant), one plant living in the cavity of another for shelter only, not parasitic; the German is "Raumparasit."

**aurantia'ceous**, *auran'tiacus*, *auran'tius* (Lat.), orange-coloured.

**Auran'tium** (Lat., an orange), a succulent superior fruit with a rough rind, such as the Orange.

**aura'tus** (Lat. gilt), metallic yellow, shot with gold; **au'reus** (Lat. golden), glowing yellow, not metallic.

**Aur'icle**, *Auric'ula* (Lat. ear-lap), (1) a small lobe or ear, an appendage to the leaf, as in Sage, or the Orange; (2) the lobule, or minor lobe of the leaf of Hepaticae, often balloon-shaped; (3) formerly and erroneously used for AMPHIGASTRIA; (4) a small lobe or special patch of cells at the basal angle of the leaf in Mosses; **auric'ular**, *auricula'ris*, auricled; ~ **Cells**, the cells in the leaf described above (4), also termed alar cells.

**aur'iform** (*auris*, the ear), ear-shaped (Crozier).

**auror'eus** (Lat.), the colour of dawn, rosy or golden.

**austere'** (*auste'rus*, harsh), astringent to the taste, as a sloe.

**austra'lis** (Lat. southern), occasionally applied to plants which are natives of warmer countries, even if not from the southern hemisphere.

**Aut'oblast** (*αὐτός*, self, *βλαστός*, a bud), a free and independent "Bioblast" (Schlater); **Autocarp'ian, autocarp'ic**, *autocarpea'nus* (*καρπός*, fruit), (1) a superior fruit, not adherent to the pericarp; (2) see next; **Autocarp'y**, the fruiting of a self-fertilized flower, the product of autogamy; adj. **autocarp'ous**; **autoe'cious** (*οἶκος*, a house), applied to a parasite which runs its whole course on a single host of a particular species; this state of things is **Autoe'cism**; **autoi'cous**, in Bryophytes, the male and female inflorescences on the same plant; the following modifications occur; **cla'do-** ~ (*κλάδος*, a branch) the male inflorescence on a proper branch; **go'nio-** ~ (*γόνος*, offspring), the male inflorescence bud-like and axillary on a female branch; **rhiz-** ~ (*ῥίζα*, a root), the male branch very short, cohering to the female by a rhizoid; **Autog'amous** (*γάμος*, marriage), self-fertilization; **Autog'amy**, when a flower is fertilized by its own pollen; **Autogen'esis** (*γένεσις*, beginning), a synonym of SPONTANEOUS GENERATION; **autogenet'ic** Fertilization = self-pollination; **autog'enous** (*γένος*, race), self-derived, used of diseases, etc., which have their origin within the organism; **autog'enus**, term proposed in place of monotypic, to show that the genus contains but a single species (Crozier).

**automat'ic**, (*αὐτόματος*, self-moving), spontaneous movement of certain parts, as the leaflets of *Desmodium gyrans*, DC.

**autonom'ic, auton'omous**, (*αὐτόνομος*, independent), used of plants which are perfect and complete in themselves, and not simply phases of other forms.

**autonyctitrop'ic** (*αὐτός*, self, *νύξ*, *νυκτός*, night, *τροπή*, a turn), spontaneously assuming the position usual during the night; **Autophyllog'eny** (*φύλλον*, leaf, *γένεσις*, beginning), the growth of one leaf from another, as from a nerve; **Aut'ophyte** (*φυτόν*, plant), a plant not dependent on humus, as opposed to SAPROPHYTE; **Aut'oplast** (*πλαστός*, moulded), a synonym of chlorophyll granule; **Autop'sia** (*ὄψις*, sight), actual inspection of the plant or phenomenon in question; **autotroph'ic** (*τρόφη*, food), existing without aid of commensalism; **autotem'nous** (*τέμνω*, I cut), capable of spontaneous division, as cells in growing tissue; **autox'enous** (*ξένος*, a host or guest) = AUTOECIOUS; **Autox'eny**, the autoecious condition; **Autox'idators** (*ὀξύς*, sharp), cell-substances, which at a low temperature, and with absorption of molecular oxygen, can be oxidised by decomposing water; **Autoxida'tion**, the phenomenon in question; **autoxidi'zable**, the property of readily undergoing this transformation.

**autum'nal**, *autumna'lis* (Lat.), belonging to autumn ; flowering at that season ; ~ **Wood**, wood formed at the close of the growing season and notable for its smaller cells.

**Auxan'agrammes** (*αὔξη*, increase, *ἀνὰ*, up, *γράμμα*, an outline), bacterian fields of increase, marked by greater development within the diffusion area of the nutrient substance (Beyerinck) ; **Auxanom'eter** (*μέτρον*, measure), apparatus for measuring increase of growth in plants.

**Auxe'sis** (*αὔξησις*, growth), (1) dilatation or increase in the valves of Diatoms, etc. ; (2) new formation of organs (Czapek).

**Auxil'iary** (*auxiliaris*, helpful) **Cell**, a cell borne by a specialised branch in certain Algae, which unites with the conjugating tube emitted by the fertilized trichophore, and then giving rise to filaments which bear the spores (Osterhout).

**Aux'ospore** (*αὔξη*, increase, *σπορά*, seed), in Diatoms, the spore formed by the union of two frustules, or the excessive growth of a single frustule, whence arises a new bion, larger than the parents ; **auxoton'ic** (*τόνος*, strain), applied to the movements incident to increase of growing organs, as heliotropism, nutation, etc.

**avellan'icus** (*avellana*, a filbert), drab, the colour of the fresh shell of the Hazel-nut, *Corylus Avellana*, Linn.

**avena'ceous**, *-ceus* (*avena*, oats), relating to oats ; **Av'enine**, a substance derived from oats.

**ave'nius** (*a*, without, *vena*, vein), veinless, or seemingly so.

**averse'**, *aver'sus* (Lat.), turned back or away from.

**Averrunca'tion** (*averrunco*, I remove), (1) pruning ; (2) uprooting.

**awl-shaped**, narrow and tapering to a point ; subulate.

**Awn**, a bristle-like appendage, especially occurring on the glumes of grasses ; ~ of *Chaetoceras*, a diatomaceous genus, having prolongations of the frustules, recalling the awns of grasses ; **awned**, having awns ; bearded.

**axe-shaped**, dolabriform, as the leaves of some species of *Mesembryanthemum*.

**ax'ial** (*axis*, an axle), relating to the axis ; ~ **Wood**, the normal central cylinder of xylem ; **axif'erous** (*fero*, I bear), bearing an axis, but without leaves or other appendages.

**Ax'il**, **Axill'a** (Lat. arm-pit), the angle formed between the axis and any organ which arises from it, especially of a leaf.

**ax'ile** (*axis*, an axle), belonging to the axis, as axile placentation.

**axill'ant** (*axilla*, arm-pit), subtending an angle ; **axill'ary**, *axilla'ris*, growing in an axil ; **axilla'tus**, having axils.

**Ax'is** (Lat. an axle), an imaginary line, round which the organs are developed ; ~ of **Inflores'cence**, that part of the stem or branch upon which the flowers are borne ; **access'ory** ~, an axis of secondary rank ; **a'pical** ~ of Diatoms, is that line which passes through the centre of the pervalvar axis in the direction of the raphe and at equal distances from homologous points of the girdle-band surfaces ; **Append'ages** of the ~, such organs as leaves, flowers, etc. ; **ascend'ing** ~, = the stem ; **descend'ing** ~, = the root ; **pervalv'ar** ~, the main longitudinal axis of Diatoms ; **transa'pical** ~, the axis which passes at right angles to the apical axis of Diatoms, and through the centre of the pervalvar axis ; **transvers'al** ~, the axis which lies in the transversal plane of Diatoms, cutting the pervalvar axis.

**Axog'amy** (*ἄξων*, axis, *γάμος*, marriage), plants bearing sexual organs on the leafy stem ; adj. **axogam'ic** ; **Axophy'ta** (*φυτόν*, a plant) = CORMOPHYTA ; plants having an axis, that is, stem and root ; **axosperm'ous** (*σπέρμα*, seed), with axile placentation of ovules.

**azo'nal** (*a*, not, *ζώνη*, girdle), C. Macmillan's term for Plant-associations which show no well-marked radial symmetry; **Azote'** (*ζωή*, life), Lavoisier's name for nitrogen, still used in French works; **azo'tised**, compounded with nitrogen.

**Az'ure** *azu'reus* (late Lat., sky-blue), blue as the sky.

**Azy'gosperm**, (*a*, not, *ζυγός*, a yoke, *σπέρμα*, seed), a synonym of **Azy'gospore** (*σπορά*, seed), the growth of a gamete direct without conjugation, a parthenogenetic spore; **az'ygous**, unpaired, as a leaflet which is not matched on the opposite side of the rhachis.

**Bac'ca** (Lat.), a berry, a succulent fruit with seeds immersed in the pulp, as the Gooseberry; ~ **cortica'ta**, berry with a rind, the term has been applied to the ovary; ~ **sicc'a**,‡ succulent while unripe, dry when mature; ~ **spu'ria**,‡ any fleshy fruit which is not a true berry, as raspberry and strawberry; **bac'cate**, *bacca'tus*, berried; "semina baccata," seeds having a pulpy skin, as in *Cycas;* **Baccaular'is**, **Baccaular'ius**, ‡ (deriv. ?), Desvaux's name for CARCERULE; **Baccau'sus** = ETAERIO; **Bacce'tum**, Dumortier's term for SYNCARP; **baccif'erous**, *bac'cifer*, (*fero*, I bear), berry-bearing, the fruit a berry, usually applied when the normal fruit of the genus is otherwise; **bac'ciform**, *bacciform'is* (*forma*, shape), like a berry in shape.

**Bacill'us**, pl. **Bacill'i** (*bacillum*, a staff), (1) ‡ young bulb; (2) the frustules of certain Diatomaceae, as *Bacillaria;* (3) rod-shaped Bacteria; **bac'illar**, *bacilla'ris*, **bacil'liform**, (*forma*, shape), rod- or club-shaped.

**Back**, that side which is turned from the part or substratum to which an organ is attached; the dorsal surface.

**Bacter'ium**, pl. **Bacte'ria** (*βακτήριον*, a small staff), Cohn's name for low forms of organic life, multiplying by fission, Schizomycetes; **bac'teroid** (*εἶδος*, resemblance), resembling bacteria; ~ **Tissue**, applied to the root-tubercles of various plants; **Bac'teroids** or **Bacter'ioids**, organisms found in nitrifying tubercles on the roots of plants, especially Leguminosae, attributed to the action of bacteria; **Bacteriol'ogy** (*λόγος*, discourse), the science of the life history of bacteria; **Bacte'rio - pur'purin**, the purple colouring matter of some bacteria; **Bacterio'sis**, disease due to the attack of bacteria.

**baculif'erous** (*baculum*, a staff; *fero*, I bear), bearing canes or reeds; **bacu'liform**, *baculiform'is* (*forma*, shape), stick-shaped, rod-like, as the ascospores of certain Lichens.

**bad'ious**, *bad'ius* (Lat.), dark reddish-brown; chestnut-brown.

**Balus'ta**, "sometimes applied to fruits like the pomegranate" (Crozier).

**Balaus'ta** (*βαλαύστιον*, pomegranate flower), the fruit of *Punica Granatum*, Linn., with firm rind, berried within, crowned with the lobes of an adnate calyx.

**bald**, destitute of pubescence or downy appendages.

**Bale** ‡ (Fr. Bâle), cited by S. F. Gray for the outer glume of grasses.

**Ball'ing**, in nuclear development, the fusion of nuclei into one nucleus.

**Balm** (*βάλσαμον*, balsam), pr. Bahm, a thick, usually resinous exudation of reputed medical efficacy; **Bal'sam**, pr. Bawls'm; a similar exudation, generally of resin mixed with volatile oil; **balsam'ic**, having the qualities of balsam; **balsamif'erous**, *-rus*, (*fero*, I bear), producing balsam.

**Bamb'oo**, the name applied to the culm of arborescent grasses, notably species of *Bambusa*.

**Band**, (1) space between two ridges in the fruit of Umbellifers; (2) a stripe generally; ~ **shaped**, used of long

narrow leaves, linear; **band'ed**, marked with stripes of colour.

**Ban'ner**, the standard of a papilionaceous flower.

**Barb**, hooked hairs, frequently doubly-hooked;

**Barba** (Lat.), a beard; **bar'bate**, *barba'tus*, bearded, having long weak hairs in tufts; **Barbell'ae** ‡, the short stiff straight hairs of Composite pappus; adj. **barbell'ate**; **Barbell'ulae**, ‡ similar structures in the pappus of *Aster;* adj. **barbell'ulate**, *barbellula'tus;* **Barb'ule**, *Barb'ula*, (1) the inner row of teeth in the peristome of such Mosses as *Tortula;* (2) a small barb (Crozier).

**Barill'a**, the crude soda from *Salsola* and allied genera.

**Bark**, (1) the outer integuments of the wood and exterior to it, all tissues outside the cambium; (2) frequently restricted to the periderm and tissues external to it; ~ **bared**, stripped of the bark; ~ **bound**, having the bark too tense, thus impeding growth; ~ **galled**, having the bark injured.

**Barm**, the floating yeast as used in bread-making, the "Oberhefe" of the Germans; **barm'y**, containing yeast.

**barred**, crossed by lines approximately parallel.

**bar'ren**, unproductive, infertile; applied to the male inflorescence of certain Mosses; ~ **Flow'er**, the male or staminate flower.

**Barymorpho'sis** (*βαρὺς*, heavy, *μόρφωσις*, shape), Sachs's term for the changes produced in organisms in consequence of gravitation.

**ba'sal** (*basis*, foundation), at the base of an organ or part; ~ **Cell**, the first cell of an angiospermous embryo which becomes attached to the wall of the embryo-sac; ~ **Growth**, increase near the base, as distinguished from apical growth; ~ **nerved**, *basiner'vis*, with nerves from the base of the leaf; ~ **Placen'ta**, the placenta at the base of the ovary; ~ **Wall**, the division of the oospore in Archegoniatae into an anterior and a posterior half; **Base**, the extremity of attachment, by which nutrition takes place.

**Bas'id** = **Basid'ium**, pl. **Basid'ia** (*basidium*, a little pedestal), the mother-cells of Hymenomycetous and Gasteromycetous Fungi, having little points from which spores are thrown off; **basidiogenet'ic** (*γένος*, race, descent), produced upon a basidium; **Basidiogonid'ium** (*γονή*, race, offspring), proposed emendation of "basidiospore"; **Basidiomyce'tes** (*μύκης*, *μύκητος*, fungus), Fungi producing spores on basidia; **Basid'iophore** (*φορέω*, I carry), a sporophore bearing a basidium; **Basidiorhi'zae** (*ῥίζα*, root), Vuillemin's name for Basidiomycetes; **Basid'iospore** (*σπορά*, a seed), a spore produced by a basidium; **basidiosp'orous**, producing such spores.

**basifi'xed**, *basifix'us* (*basis*, foundation, *fixus*, fast), attached by the base; **basif'ugal** (*fugo*, I put to flight), developing from the base upwards; **basig'amous** (*γάμος*, marriage), when the normal position of egg-apparatus and antipodals is reversed; the oosphere and synergidae being at the lower end of the mother-cell of the endosperm (embryo-sac); Van Tieghem contemplates the possible occurrence of double **Basig'amy**; **Basigyn'ium** (*γυνή*, a woman), a thecaphore, the stalk of an ovary above the stamens and petals; **bas'ilar**, *basila'ris*, basal; **basiner'ved** (*nervus*, a nerve), veined from the base; **basila'tus** ‡ arising from a broad base as certain hairs; **basip'etal** (*peto*, I seek), growth in the direction of the base.

**Ba'sis** (Lat.) the base; **basiscop'ic** (*σκοπέω*, I look), looking towards the base, the reverse of acroscopic; **basisolu'tus** ‡ (*solutus*, unbound), used of such leaves as those of *Sedum* which are prolonged downwards beyond their true origin; **Basist'onus** (*τόνος*, a cord), the pro-

longation of the tissue of the pollen-sac to the lower end of the anther in Ophrydineae; **bas'ophil** (*φιλέω*, I love), readily taking stain from basic substances.

**Bass**, the inner fibrous bark of the lime, used by cultivators for temporary ties; the liber.

**Bast**, (1) the same as in the last; (2) phloëm; (3) fibrous tissues serving for mechanical support; ~ **Cells**, the components of the bark; ~ **Collench'yma**, tissue with the walls of the sides thickened on all sides (C. Mueller); ~ **Fibres**, = liber-fibres; ~ **Sheath**, layer of thin-walled cells surrounding the fibro-vascular cylinder next within the cortex, the periphloëm; ~ **Tissue**, phloëm; ~ **Vessel**, sieve-tube; **Hard** ~, liber-fibres; **Soft** ~, the sieve-tubes, with the thin-walled part of the phloëm.

**Bass'orin**, a product of Bassora Gum, Tragacanth, etc., which does not dissolve like Gum Arabic, but swells up when placed in water, and forms a pasty mass.

**bathymet'rical** (*βαθύς*, deep or high, *μέτρον*, measure), used of the distribution of plants on the sea-bottom; and the depths at which they grow.

**Batol'ogist** (*βάτος*, a bramble, *λόγος*, discourse), a student of brambles, the species and forms of *Rubus*.

**Beak**, a pointed projection; **beaked**, used of fruits which end in a long point.

**beard'letted**, having small awns.

**Beard**, synonymous with Awn; **beard'ed**, (1) awned, as bearded wheat; (2) having tufts of hairs, as on the lip of *Pentstemon barbatus*, Roth.

**Bear'ers**, used by Blair for flower-buds.

**Bebeer'in**, a tonic alkaloid from the Greenheart, *Nectandra Rodiaei*, Hook., native name, *Bebeeru*.

**Bedeguar'**, a fibrous gall produced on a rose-bush by the puncture of a species of *Cynips*.

**Bee-bread**, the pollen of flowers, collected by bees as food for the young larvae.

**bell-shaped**, tubular and inflated, as the corolla of Campanulaceae.

**bell'ying**, swelling on one side as in many Labiatae.

**Benzoin'**, a fragrant resinous exudation from *Styrax Benzoin*, Dryand.; called also Gum Benjamin.

**Ber'berine**, a yellow bitter principle from the root of *Berberis vulgaris*, Linn.

**ber'ried**, baccate, possessing berries.

**Ber'ry**, a pulpy fruit, with immersed seeds; *cf.* BACCA.

**Bes'imen**, ‡ pl. **Besim'ina** (*βιώσιμος*, having the power of living) Necker's name for a spore.

**Be'tain**, an amide-like substance from *Beta*, the beet.

**Bet'ulin**, a substance derived from *Betula*, the birch.

**bi-**, **bis-**, in compound words meaning "twice."

**biacu'minate**, *biacumina'tus* (bi + acuminate), having two diverging points, as the hairs of Malpighiaceae, attached by the centre; **biang'ulate** (*angulus*, a corner), having two corners or angles; **biartic'ulate**, *biarticula'tus* (*articulus*, a joint), two-jointed.

**biator'ine**, resembling the Lichen genus *Biatora*.

**biauric'ulate** (*bi*, twice, *auricula*, the ear lobe), with two auricles or ear-like appendages; **biauri'tus** (Lat.) is substantially the same; **bibract'eate**, *bibractea'tus* (*bractea*, a thin plate), having two bracts; **bibract'eolate**, with two bracteoles; **bicalc'arate** (*calcar*, a spur), having two spurs; **bicall'ose** *bicallo'sus* (*callus*, hardened skin), with two callosities; **bicap'sular** (*capsula*, a small box) (1) with two capsules; (2) having a capsule which is bilocular; **bicar'inate**, *bicarina'tus* (*carina*, a keel), with two keels; **bicar'pellary** (+ *carpellum*), of two carpels or pistils; **biceph'alous** (*κεφαλή* head); **bi'ceps** (Lat.) two-headed; **bicip'ital**, with

two heads or two supports; **bicil'iate**, *bicilia'tus* (*cilium*, an eyelash), with two cilia, as many zoospores; **bicollat'eral** (*con*, + *latus*, *lateris*, side), applied to a vascular bundle with two groups of phloëm lying upon opposite sides of the xylem; **Bicollateral'ity**, is the state just described.

**bic'olor** (Lat.) two-coloured, parti-coloured.

**biconcen'tric** (*bi*, *con* + *centrum*, a point), Poulsen's term for the fibro-vascular bundles in Eriocauloneae; round the axial hadrome bundle is a layer of leptome, which is again enclosed by a hadrome layer; **bicon'jugate**, *biconjuga'tus*, (*conjuga-tus*, joined), twice-conjugate, that is, when each of two secondary petioles bears a pair of leaflets; **biconjuga'to-pinna'tus**, similar to the last, but each petiole pinnate; **Bicor'nes** (*cornu*, a horn), the heaths, from their horned anthers; **bicor'nis** (Lat.) **bicorn'ute**, *bicornu'tus*, two-horned, as the siliqua of *Matthiola bicornis*, DC.; **bicre'nate** (*crena*, a notch) (1) having two crenatures or rounded teeth (Crozier); (2) doubly crenate; **bicru'ris** (Lat.) two legged, as the pollen-masses of Asclepiads; **bicusp'id** (*cuspis*, spear-point); **bi-cusp'idate**, having two sharp points; **bident'ate**, *bidenta'tus* (*dens*, *dentis*, a tooth), (1) having two teeth; (2) doubly dentate, as when the marginal teeth are also toothed; **bi-digita'tus** (Lat.) = BICONJUGATE.

**bid'uous**, *biduus* (*biduum*, two days long), lasting for two days.

**Bienn'ial**, (*biennium*, a period of two years), a plant which requires two years to complete its life-cycle, growing one year, and flowering and fruiting the second; signs ② or ☉; **bien'nial**, *biennis* = monocarpic.

**Biere'mus** (*bi*, twice, *eremus*, a hermit), a two-celled fruit, the cells so far apart as to seem separate, as in *Cerinthe;* **bifa'cial** (*facies*, an appearance), when the leaf has spongy tissue on the lower face, and compact tissue on the upper sides; opposed to centric.

**bifa'riam** (Lat. in two parts), arranged in two rows; ~ **imbrica'tus**, imbricated in two rows; **bifa'rious**, *bifa'rius*, distichous.

**Bi'fer** (*bi*, *fero*, I bear), a plant which ripens fruit twice a year (Crozier); **bif'erous**, *biferus*, double bearing, producing two crops in one season; **bi'fid**, *bif'idus* (*findo*, *fidi*, to cleave), twice-cleft, divided halfway into two; **bif'idate** = bifid (Crozier); **bifist'ular** (*fistula*, a pipe), with two tubular openings (Crozier); **biflor'ate** (Crozier), **biflor'ous**, *-rus* (*flos*, *floris*, a flower), having two flowers; **bifo'liate**, *bifolia'tus* (*folium*, a leaf), two-leaved; **bifo'lio-late**, *bifoliola'tus*, having two leaflets; ~ **Leaf**, binate; **bifollic'ular**, possessing a **Bifollic'ulus** (*follicu-lus*, a small sack), a double follicle.

**bifo'rate**, *bifora'tus* (*biforis*, having two doors), with two perforations; **Bif'orine**, an oblong cell, opening at each end, containing raphides; **bifo'rous** = biforate.

**biform'is** (Lat.), two formed; in two shapes.

**bi'frons** (Lat.), (1) having two faces or aspects; (2) growing on both surfaces of a leaf, amphigenous.

**bifurc'ate**, *bifurca'tus* (*bifurcus*, two-pronged or forked), twice forked; **Bifurca'tion**, division into two branches.

**bigem'inate**, *bigemina'tus* (*geminus*, a twin) = BICONJUGATE; **bigem'inus**, in two pairs, as in the placentae of many plants.

**Bi'gener** (Lat. a hybrid), mule plants obtained by crossing different genera, usually spoken of as a **bigeneric Cross.**

**bigland'ular** (*bi*, two, *glandula*, a gland), with two glands.

**biglu'mis** (*gluma*, a husk), consisting of two glumes, the components of the perianth of grasses; **bihila'tus** ‡ (+ HILUM), having two scars as in certain pollen; **biju'gate** *bijuga'-*

*tus*, **biju'gous** (*jugum*, a yoke), applied to a pinnate leaf, with two pairs of leaflets ; **bila'biate**, *bilabia'tus* (*labium*, lip), divided into two lips, as are many gamopetalous corollas, etc. ; **bilam'ellar**, **bilam'ellate**, *bilamella'tus* (*lamella*, a thin plate), consisting of two plates, as some placentae ; **bilat'eral**, *bilatera'lis* (*latus*, side), arranged on opposite sides, as the leaves of the yew ; **bilo'bate**, *biloba'tus*, **bilo'bed** (λοβός, the ear-flap), divided into two lobes, as most anthers, or the leaves of *Bauhinia* ; **bilocell'ate** (*locellus*, a small compartment), made up of two locelli ; **biloc'ular**, *bilocular'is* (*loculus*, a compartment), two-celled ; **bimac'ulate** (*mac'ula*, a spot), with two spots.

**bimes'tris** (Lat.), of two months' duration.

**bi'mus** (Lat.), lasting for two years.

**bi'nary** *bina'rius* (*bini*, by twos), consisting of two members ; **bi'nate**, *bina'tus* (Lat.), (1) where a leaf is composed of two leaflets at the end of a common petiole ; (2) a simple leaf nearly divided into two ; **bina'tim** (Lat.), in pairs ; **bina'to-pinna'tus** ‡ = BIPINNATE.

**biner'vate** (*bi*, two, *nervus*, a nerve), with two nerves, especially if prominent ; **binervula'tus** ‡ (Lat.), having two vascular strands.

**bi'ni** (Lat.), two together, twin ; as **biniflor'us**, bearing flowers on pairs.

**bino'dal**, *bino'dis* (*bi*, two, *nodus*, a knot), consisting of two nodes.

**bino'mial** (*bi*, two, *nomen*, a name), in botanic nomenclature, the use of a generic and specific name to connote a given organism ; used also for NEWTONIAN CURVE.

**bi'nous**, *bi'nus* (Lat.), in pairs ; *cf.* BINI.

**binu'clear**, **binu'cleate** (*bi*, two, *nucleus*, a kernel), having two nuclei ; **binu'cleolate**, *binucleola'tus* (Lat.), with two nuclei.

**Bi'oblast** (βίος, life, βλαστός, a shoot), term proposed by Schlater for the unit of life, comprising autoblasts, or free existing bioblasts, and cytoblasts or colonies of such bioblasts as have lost their independent existence ; *cf.* BIOPHOR.

**bioc'ellate** (*bi*, two, *ocellus*, a little eye), marked with two eyespots.

**Biogen'esis** (βίος, life, γένεσις, beginning), the doctrine of life from life, the production of organisms from others already in existence ; in opposition to Spontaneous Generation ; **biog'enous** (γένος, race), growing on living organisms ; **biog'eny**, the evolution of living forms, including ONTOGENY and PHYLOGENY ; **Biol'ogy** (λόγος, discourse), the science which investigates vital phenomena, both of plant and animal ; **biolyt'ic** (λύσις, a loosing), destructive of life ; **Bi'on**, an individual, morphologically and physiologically independent ; **Bionom'ics** (νόμος, a law), Geddes's term to express Phytobiology, the oecology of plants ; in German, Pflanzenbiologie ; **bioph'agous** (φάγος, a glutton), feeding on living organisms, truly parasitic ; **Bi'oplasm** (πλάσμα, moulded), Beale's name for PROTOPLASM ; **bioph'ilous** (φιλέω, I love), used of Fungi which are parasitic on leaves or stems of living plants ; **Bi'ophor** (φορέω, I carry), G. C. Bourne's name for the cell, as the vital unit.

**bipal'eolate**, *bipaleola'tus* (*bi*, + *paleola*), consisting of two paleae, or small scales in grasses ; **bipal'mate**, *bipalma'tus* (*palma*, the palm of the hand), twice palmate, palmately compound ; **bip'arous** (*pario*, I bring forth), bearing two ; ~ **Cyme**, Bravais's expression for a normal dichotomous inflorescence ; **bipart'ible**, *bipartib'ilis*, **bipar'tile** (*part'ilis*, divisible), capable of ready division into two similar parts ; **bipart'ite**, *biparti'tus* (Lat.), divided nearly to the base into two portions ; **Bipartit'ion**, the act of dividing into two ; **bipect'inate** (*pecten*, a comb), toothed like a comb on two sides ; **bipelt'ate** (*pelta*, a shield), having

two shield-shaped parts (Crozier); **biperen'nial** (*perennis*, perpetual), used of a part that lives two years, but reproduces itself indefinitely (Crozier); **bipet'alous** (*πέταλον*, a flower leaf), Blair's term for two-petalled flowers as *Circaea*; **bipentaphyll'us** (*πέντη*, five; *φύλλον*, leaf), having from two to five leaflets.

**bi'pes** (Lat., two-footed) = BICRURIS.

**bipin'nate**, *bipinna'tus* (*pinnatus*, feathered), when both primary and secondary divisions of a leaf are pinnate; **bipinnat'ifid**, *bipinnatif'idus*, when the divisions of a pinnatifid leaf are themselves pinnatifid; **bipinnatipart'ed** = bipinnatifid; **bipinnat'isect**, *bipinnatisect'us* (*sectus*, cut) = bipinnate; **bi'plicate**, *biplica'tus* (*plico*, I fold), doubly folded in a transverse manner, as some cotyledons; **bipo'lar** (*polus*, the end of an axis), having two poles, the usual number in nuclear division; **bipolymor'ious** ‡ (*πολύς*, many; *μόριον*, a small portion), consisting of two or many parts; **bipo'rose**, *biporo'sus* (*porus*, channel), opening by two pores as the anthers in *Erica*; **biprophylla'tus** (+ PROPHYLLA) Buchenau's term for possessing two prophylla (Vorblätter); **bipunc'tate**, (*punctum*, a point), having two spots; **bira'diate**, *biradia'tus* (*radius*, the spoke of a wheel), of two rays, as in certain umbels; **biri'mose**, *birimo'sus* (*rima*, a chink), opening by two slits, as most anthers; **bisac'cate** (*saccus*, a bag), having two pouches.

**biscoctiform'is** (*bis*, twice; *coctus*, cooked; *forma*, shape), biscuit-shaped, applied by Koerber to some Lichen-spores.

**bisep'tate**, *bisepta'tus* (*bi*, two, *septum*, a wall), having two partitions; **bise'rial**, *biseria'lis*, **bise'riate**, *biseria'tus* (*series*, a succession), arranged in two rows as on a flat surface; **biser'rate**, *biserra'tus* (*serra*, a saw), twice serrate, as when the serratures are themselves serrate; **bise'tose**, **bise'tous** (*seta*, a bristle), with two bristles; **bisex'ual**, *bisexua'lis* (*sexus*, sex), having both stamens and pistils, possessing perfect, that is, hermaphrodite flowers; ~ **Hered'ity**, transmission of qualities of both parents; **bispathel'lulate**, *bispathellula'tus* ‡ (+ SPATHELLA), consisting of two glumes (Lindley).

**bispi'nose** (*spino'sus*, thorny), having two spines; **bispi'rous** (*σπεῖρα*, a twist), term used by Spruce for elaters having two spirals, *cf.* DISPIROUS; **Bi'spore** (*σπορά*, seed), (1) "a two-spored tetraspore" (Crozier); (2) an ascus with two cells, in place of the normal eight; **biste'lic** (*στήλη*, a pillar), having two steles; **bistip'ulate** (+ STIPULA), with two stipules; **bistra'tose** (*stratum*, a layer), cells disposed in two strata or layers; **bistri'ate** (*striatus*, striped), marked with two parallel lines or striae; **bisulc'ate**, *bisulca'tus* (*sulcus*, a groove), two-grooved; **bisymmet'ric** (*σύμμετρος*, commensurate), bilateral symmetric, each side alike; **Bitegmina'tae** (*tegmen*, a cover), Van Tieghem uses this for Phanerogams whose seeds have double integuments; **bitern'ate**, *biterna'tus* (*ternus*, by threes), compound ternate, as a leaf.

**bit'ten**, abruptly ended, of roots or leaves, praemorse.

**bi'valve** *bival'vis* (*bi*, two, *valvae*, leaves of a door), having two valves, as some capsules; **Bi'valve**, "a capsule of two valves" (Crozier); **bival'ved**, (1) used of Diatoms, as possessing two valves; (2) the indusia of certain ferns, as *Dicksonia*; **bival'vular** = BIVALVE; **bivasc'ular** (*vasculum*, a vessel), with two vessels; **bivit'tate** (*vittae*, fillets), having two partitions which appear as bands or fillets.

**Blad'der**, (1) Grew's term for a cell; (2) a hollow membranous appendage on the roots of *Utricularia*, which entrap water insects; (3) similar growths in the frond of some Algae, serving as floats; (4) an inflated

membranous pericarp, as in *Physalis*; ~ **Plums**, an abortion of the fruit of plums, the stone being wanting, and a thin bladder representing the rest of the fruit; **blad'dery**, thin and inflated.

**Blade**, the limb or expanded portion of a leaf.

**blanched**, (1) the whitened appearance of leaf or stem from the want of iron; (2) artificially produced by exclusion of light, the green chlorophyll pigment not being developed in either case.

**Blaste'ma** (*βλάστημα*, a sprout), (1) originally the axis of an embryo, the radicle and plumule, excluding the cotyledons; (2) ‡ the Lichen-thallus; **blaste'mal**, rudimentary; **blastemat'icus**, thalloid; **Blaste'sis**, the reproduction of the thallus of Lichens by gonidia (Minks).

**Blastid'ia** (*βλαστὸς*, shoot), Schleiden's term for secondary cells generated in the interior of another cell, daughter cells; **Blast'idules**, M'Nab's expression for all reproductive bodies which are not spores, but produced asexually, as gemmae, propagula, etc.; **blastocarp'ous** (*καρπὸς*, fruit), applied to those fruits which germinate within the pericarp; **Blastocol'la** (*κόλλα*, glue), the balsam which is produced on buds by glandular hairs (Hanstein); **Blastogen'esis** (*γένεσις*, beginning), M'Nab used this for all methods of asexual reproduction which are not due to Sporogenesis; **Blastograph'ia** (*γράφω*, I write), the study of buds (Du Petit Thouars); **Blastomyce'tes** (*μύκης*, fungus), a synonym of Saccharomycetes, the yeast fungus, etc.; **Blast'ophore**, *Blastoph'orus* ‡ (*φορέω*, I carry), the vitellus, the sac of the amnios in a thickened scale, forming a case in which the embryo lies; **Blast'us** ‡ the plumule.

**Blind**, a cultivator's expression for abortion, as when a flower-bud is said to go blind, that is, does not develop.

**Blea**, pr. blee; the liber or inner bark.

**Bleb**, Hill's term for a pith-cell.

**Bleed'ing**, applied to an extravasation of sap, such as occurs in vines if injured in spring during leaf expansion.

**Blendl'ing**, a hybrid between races, not species.

**Bleph'arae**, pl. (*βλέφαρον*, an eyelash), the teeth belonging to the peristome of a Moss; **Bleph'aroplast** (*πλαστὸς*, moulded), the specialised protoplasm which gives rise to the motile cilia of the antherozoids as in *Zamia* and *Cycas*; **Blepharoplast'oids** (*εἶδος*, resemblance), in nuclear division, two bodies appearing between the 2- and 4-celled stage at each pole of the two spindles, disappearing into the cytoplasm before the rise of the blepharoplasts themselves (Shaw).

**Blet**, a soft spot on fruit; **Blet'ting**, the change in consistence without putrefaction, of certain fruits, as the medlar.

**Blight**, popularly applied to an epidemic, either of minute Fungi, or of aphides.

**Bloom**, (1) synonymous with Blossom; (2) the white waxy or pruinose covering on many fruits and leaves.

**Blos'som**, the flower, especially of fruit trees; ~ **Bud**, = Flower-bud.

**blotch'ed**, colour irregularly disposed in patches.

**blunt**, ending in a rounded form, neither tapering to a point, nor abruptly cut off.

**boat-shaped**, having the figure of a boat, with or without a keel.

**bola'ris** (Mod. Lat.), dark red, brick-coloured; from the earth, Armenian Bole.

**Bole**, the main trunk of a tree, with a distinct stem.

**bolet'ic**, obtained from the genus *Boletus*, as boletic acid.

**Boll**, pr. boal, the fruit capsule or pericarp, especially of the cotton plant; **Bolling**, pr. boal'ing, = Pollard; **bolled**, pr. boald, come

into fruit, as flax when the capsule is formed.

**bomby'cinus** (Lat.), silky, feeling as smooth as silk.

**bo'ny**, of a close and hard texture, as the stones of plums, etc.

**bord'ered**, having a margin distinct in colour or texture from the rest; ~ **Pit**, a pit in which the margin projects over the thin closing membrane, as in coniferous wood; ~ **Pore**, is the same thing.

**borr'agoid**, from the genus *Borago*, applied to a form of inflorescence which finds its fullest development in *Anchusa*, an extreme case of extra-axillary inflorescence (K. Schumann).

**Boss**, a protuberance; **bossed**, with a rounded surface having a projection in its centre.

**bost'rychoid** (*βόστρυξ*, a ringlet, *εἶδος*, resemblance), having the form of a BOSTRYX; ~ **Cyme**, a sympodial branch system in which the right or left hand branch is always the most vigorous, a helicoid cyme; ~ **Dichot'omy**, a dichotomy or repeated forking of an inflorescence, within the previous definition; **Bost'ryx**, a uniparous, helicoid cyme.

**botan'ic** (*βοτάνη*, a herb), pertaining to the knowledge of plants; ~ **Garden**, a garden especially devoted to the culture of plants for scientific ends; **Bot'anist**, a student of plant life, in any of its departments; **bot'anize**, (1) to seek for plants in their places of growth; (2) to study actual plants; **Botanol'ogy** (*λόγος*, discourse) = BOTANY; **Bot'any**, the study of the vegetable kingdom in all its divisions, its classification, morphology, physiology, and economics.

**Bothrench'yma** (*βόθρος*, a pit, *ἔγχυμα*, that poured in), tissue composed of dotted or pitted ducts or cells.

**Bot'rus** (Crozier) = BOTRYS.

**bot'ry-cy'mose** (*βότρυς*, a bunch of grapes; *κῦμα*, a wave), racemes or any botryose clusters cymosely aggregated; **bot'ryoid, botryoid'al** (*εἶδος*, resemblance), like a cluster of grapes; **bot'ryose**, *botryo'sus* racemose; **Bot'rys**, a raceme.

**Bottom-yeast**, or Low-yeast, the yeast which forms at the bottom of the vats, in German, "Unterhefe."

**bot'uliform**, *botuliform'is* (*botulus*, a sausage *forma*, shape), sausage-shaped, allantoid.

**Bouillon** (Fr.) meatbroth, used for cultures.

**bourgeon** (Fr., in English pr. bur'jun), to bud or sprout.

**Brach'eids** (Tschirch) = BRACHYSCLEREIDS.

**brachia'lis** (*brachium*, the fore-arm), a cubit long, roughly about 18 inches; **bra'chiate**, *brachia'tus*, when branches spread and widely diverge.

**brachy** (*βραχύς*) = short, used in Greek compounds.

**brachybiostigmat'ic** (*βραχύς*, short, *βίος*, life, *στίγμα*, a spot), a term proposed by Delpino to express stigmas which are short lived, withering before their proper anthers ripen, protogynous; **brachydod'romous** (*δρόμος*, a course), with looped veins (Kerner), *cf.* BROCHIDODROMUS; **brachyp'odous** (*πούς, ποδός*, a foot), having a short stalk or foot; **Brachyscle'reids** (*σκληρός*, hard), stone-cells, the sclereids in barks and fruits (Tschirch); **Brachytme'ma** (*τμῆμα*, section), a disc-shaped cell, which by its rupture sets free a gemma in Bryophytes (Correns).

**Bract**, *Bract'ea* (Lat., a thin plate of metal), the modified leaves intermediate between the calyx and the normal leaves; **Bract-scale**, in Coniferae, a scale of the cone above which lies the seed-bearing scale; **bract'eal**, of the nature of a bract; **bract'eate**, *bractea'tus*, provided with bracts; **bracteif'erous** (*fero*, I bear), bearing bracts; *bractea'nus* ‡ formed of bracts; **Bract'eole**, *Bracte'ola*, (1) a bractlet, or small bract, (2) a prophyll; **bract'eolate**, *bracteola'tus*, having bractlets;

**bract'eose**, *bracteo'sus*, having conspicuous or numerous bracts; **Bract'less**, wanting bracts; **Bract'let**, a bract of the last grade, as one inserted on a pedicel or ultimate flower-stalk, instead of subtending it.

**Bran**, the husks or outer coats of ground corn, separated from the flour by bolting; **bran-like**, scurfy in appearance.

**Branch**, a division of the stem, or axis of growth; **Branch'ery**, Grew's term for the ramifications in the pulp of fruits; **branch'less**, bare of branches; **Branch'let**, a twig or small branch, the ultimate division of a branch.

**Brand**, disease caused by minute Fungi on leaves, as *Ustilago*, etc.

**Bras'ilin**, the colouring matter of Brazil wood, *Caesalpinia brasiliensis*, Linn.

**break**, (1) to put out new leaves; (2) to show a variation, as in florist's flowers; **Break-back**, reversion to an earlier type; **Breaking**, a popular expression for a sudden profusion of algal life in certain lakes or meres.

**Breathing-pores** = STOMATA.

**bre'vi-ramo'sus** (*brevis*, short, *ramosus*, branched), short-branched.

**brick-colour**, usually implies a dull red; latericious, testaceous.

**Breed** = RACE; **Cross-breed** = HYBRID.

**Bri'dles**, (1) strings of protoplasm which often connect the nucleus with the layer of protoplasm next the cellwall; (2) strands of cells connecting other tissues.

**Bris'tle**, a stiff hair, or any slender body which may be likened to a hog's bristle; **~pointed**, ending in a stiff short hair; **bris'tly**, beset with bristles.

**Brit'ish**, used by H. C. Watson to express the distribution of those plants which are found throughout the island of Great Britain.

**brochidod'romus** (*βρόχος*, a noose, *εἶδος*, like, *δρόμος*, a course), Ettingshausen's term for loop-veined.

**Brood-bodies**, gemmae on leaves of Mosses, becoming detached and growing into protonemal filaments; **~ Buds**, (1) a synonym of Soredium in Lichens; (2) the same as Bulbil in Archegoniatae; **~ Cell**, asexually produced propagative cell of a gonidium; **~ Gemma**, a pluricellular propagative body produced asexually and passing gradually into a brood-cell on one side, and a bulbil on the other.

**Bronte'sis**, (*βροντή*, thunder), injury to plants by electric shock.

**Brown'ian Movement**, motion shown by minute particles when suspended in a liquid.

**Bru'cine**, a poisonous alkaloid from *Strychnos Nux-vomica*, Linn., formerly supposed to be from *Brucea ferruginea*, L'Hérit.

**bruma'lis** (Lat.), pertaining to the winter solstice; flourishing in midwinter.

**brun'neolus** (Mod. Lat.), brownish.

**brun'neus** or **brun'eus** (Mod. Lat.), brown in colour.

**Brunissure** (Fr.), injury caused to vines by *Plasmodiophora Vitis*, Viala.

**brush-shaped**, aspergilliform.

**Bryol'ogy** (*βρύον*, a moss, *λόγος*, discourse), the science of Mosses, or Bryophytes generally.

**Bry'onine**, a poisonous principle extracted from the roots of *Bryonia alba*, Linn.

**Bry'ophytes** (*βρύον*, a moss, *φυτὸν*, a plant), moss-like plants, the true Mosses and the Hepaticae or Liverworts.

**Bucc'ae** ‡ (Lat., cheeks), the lateral sepals or wings of the flower of aconite.

**buckler-shaped**, resembling a round buckler with a raised rim.

**Buck'mast**, the fruit of the beech tree.

**Bud**, the nascent state of a flower or branch; **~ Cones**, of the carob, *Ceratonia Siliqua*, Linn., arrested or aborted inflorescences; **~ Glue**, = BLASTOCOLLA; **~ Ru'diment**, in *Chara*, a cell cut off from a pro-

embryonic branch as the primordium of the young plant; ~ **Scales**, the coverings of a bud; ~ **Sport** = BUD-VARIATION; ~ **Variation**, changes of colour or form in plants arising from a flower or leaf bud. —**Adventitious** ~, buds arising out of the normal course or locality; **Brood** ~, = BROOD-BUDS; **Flower** ~, the inflorescence before expansion, or a unit thereof; **Leaf** ~, an undeveloped leaf.

**Bud'ding**, (1) propagation of a garden form by inserting a bud or "eye" on another stock; (2) used also for expansion of the buds.

**Bud'let**, "a little bud attached to a larger one" (Crozier).

**Bulb**, *Bul'bus* (Lat.), a modified bud usually underground; (1) **na'ked** ~, *bulbus squamosus*, having scaly modifications of the leaves, as in the lily; (2) **tunica'ted** ~, whose outer scales are thin and membranous, as the onion or hyacinth; (3) the so-called **solid** ~, is a CORM; (4) the swollen base of the stipe of the sporophore in Hymenomycetes; ~ **Scale**, one of the components of a bulb.

**bulba'ceous**, *-ceus*, (1) bulbous; (2) having bulbs.

**Bul'biceps** (*bulbus*, a bulb, *caput*, a head), a stem bulbous at base; **bulbif'erous**, *-rus* (*fero*, I bear), bulb-bearing, as when bulbils are amongst the florets of an inflorescence, or axils of the leaves; **Bul'bil**, *Bulbill'us*, **Bulb'let**, *Bulb'ulus*, (1) a small bulb, usually axillary, as in *Lilium bulbiferum*; (2) Bulbil is also applied, (*a*) in some fungi to small pluricellular bodies incapable of germination; (*b*) deciduous leaf-buds capable of developing into a new bion or brood-bud, in Archegoniatae; **Bulbo'dium** ‡ = CORM;

**bulb'ose**, *bulbo'sus*, **bulb'ous**, having bulbs or the structure of a bulb; *bulbo'si pi'li*, hairs with an inflated base; **Bulbotu'ber**, Gawler's name for CORM; **Bul'bule** = Bulbil (Crozier).

**bull'ate**, *bulla'tus* (*bulla*, a bubble), blistered or puckered, as the leaf of the primrose; **Bullescen'tia** (+*escens*), the state of being blistered, as the Savoy Cabbage; **bul'liform** (*forma*, shape), used of some large thin-walled cells, occurring on the epidermis of certain grasses (Duval-Jouve).

**bunched**, gibbous.

**Bun'dle**, a strand of specialized tissue, variously modified; ~ **Flange**, communications between the unbranched leaf-bundles of Gymnosperms and the surrounding tissues; ~ **Sheath**, the enveloping cylinder of closely united parenchyma:—**Bicollat'eral** ~, when a second bast-strand exists on the inner, medullary, side of the wood of the conjoint-bundle; **Cauline** ~, confined to the stem; **Closed** ~, destitute of cambium, the procambium having become permanent tissue; **Collat'eral** ~, when the wood and bast lie side by side; **Com'mon** ~, that is, to stem and leaf, becoming a leaf-trace; **Concen'tric** ~, when either the wood, or the bast system surrounds the other; **Conjoint** ~, consisting of both wood and bast; **Corti'cal** ~, peculiar to the cortical region; **Medull'ary** ~, the vascular bundles occurring in the pith, when there is a well-defined exterior ring; **Open** ~, when the bundle possesses a portion of cambium; **Ra'dial** ~, having the strands of wood and bast alternately as in roots; **Phloëm** ~, the bast portion; **Vasc'ular** ~, the entire strand, consisting of liber or bast portion (phloëm) and tracheal or wood-portion (xylem) in various degrees; **Xylem** ~, the wood-portion.

**Bunt**, a common disease of the wheat plant, from *Tilletia Tritici*, Winter.

**Bur**, a prickly headed fruit, applied to the chestnut, *Arctium*, and the like; **bur'ry**, resembling a bur.

**Bur'gundy Pitch**, a resin from species of *Abies*.

**Burr**, a woody outgrowth from the bark of certain trees; *cf.* GNAUR.

**Bur'sa** (Lat., a purse) ‡ the antheridium of *Chara*; **Bers'icule, Bursic'ula** (Lat., a small purse), the pouch-like expansion of the stigma into which the caudicle of some Orchids is inserted; **bursic'ulate**, *bursicula'tus*, purse-like.

**Bush**, a low shrub, branching from the ground.

**butterfly-like, ~ shaped,** = PAPILIONACEOUS.

**Butt'ons,** ‡ an old term for BUDS.

**Butt'ress**, the knee-like growths of trunk or roots in certain trees.

**bux'eous**, *bux'eus* (*Buxus*, the Box-tree), (1) the colour of box-wood, (2) pertaining to that tree; **Bux'ine**, an alkaloid from *Buxus sempervirens*, Linn.

**byssa'ceous**, *-ceus* (*byssus*, fine flax), composed of fine threads; **Byss'us**, the stipe of certain Fungi.

**Butyr'ic Fer'ment**, caused by *Bacillus Amylobacter*, Van Tiegh.; *see* FERMENTATION.

**caca'inus**, chocolate brown; from the name of *Theobroma Cacao*, Linn.

**Cach'rys** ‡ (Lat.) the cone of a pine-tree.

**cact'al**, (*Cactus*, a genus of succulents), **cacta'ceous** (+aceous), cactus-like, or pertaining to the order Cactaceae.

**Cacu'men** ‡ (Lat.), the apex of an organ.

**cad'ens** (Lat. falling), when the fumiculus passes over the top of the seed as in Plumbagineae; **cadu'cous**, *cadu'cus*, dropping off early, as the sepals of a poppy on expansion.

**Cae'cum** (Lat. blind), a prolongation of the embryo in *Casuarina* and certain Amentiferae.

**Caeno'bio** = COENOBIO.

**Caeo'ma** (*καίω*, I burn) **Cushions**, or **~ Disks**, enlargements of the tips of twigs, due to the attack of forms of *Caeoma*, Link, believed to be a stage of *Melampsora*.

**caerulesc'ent** (*caeruleus*, sky-blue + escens), verging towards blue; **caeru'leus**, sky-blue.

**cae'sious, cae'sius** (Lat. grey of the eyes), light grey in tint; **caesiel'lus** is a diminutive.

**caespitell'ose** (*caespes*, or *cespes*, a sod), somewhat tufted; **cae'spitose**, *caespito'sus*, growing in tufts like grass; **caespit'ulose**, somewhat crowded in tuft-like patches.

**Caeto'nium**, Lindley's spelling of COETONIUM.

**Caff'eine**, an alkaloid from coffee berries, *Coffea arabica*, Linn.

**Calama'riae** (*calamus*, a reed), (1) a term of vague application, which has been used for plants resembling grasses, chiefly sedges, but even including *Isoëtes*, *Juncus*, *Typha*, etc.; (2) at present restricted to fossil plants, Equisetineae; **calama'rian**, sedge-like; **calamif'erous** (*fero*, I bear), having a hollow, reed-like stem; (2) producing reeds; **Cal'amite**, a fossil type, resembling recent *Equiseta* on a gigantic scale; **calami'tean**, resembling the last; **Cal'amus**, a fistular stem without an articulation.

**Cal'athide**, *Cal'athida*, *Calath'ium*, *Calathid'ium* (*κάλαθος*, a wicker basket), the head of a Composite; preferably restricted to the involucre of the same; **cal'athiform**, *calathiform'is*, cup-shaped, almost hemispherical; **calathidiflor'us** ‡ (*flos*, *floris*, a flower), having a Calathidium or Capitulum; **Calathiph'orum** (*φορέω*, I bear), the stalk of a Capitulum.

**Calc'alary** (*calculus*, a pebble), Grew's term for the sclerogenous tissue of a pear.

**Calc'ar** (Lat.) a spur; **calc'arate**, *calcara'tus*, furnished with a spur; **calcariform'is** (*forma*, shape), spur-shaped.

**calca'reous**, *-eus* (*calx*, lime), (1) chalk-white, as to colour; (2) growing in chalky or limestone places; (3) having the substance of chalk, as the chalk-glands of certain saxifrages.

**cal'ceolate**, *calceola'tus*; **cal'ceiform**, *calceiform'is* (*calceolus*, a slipper,

*forma*, shape), shaped like a shoe.

**cal'ceus** (Lat. from *calx*), chalk-white; **calc'iform** (*forma*, shape), "powdery, like chalk or lime." (Crozier); **calciph'ilous** (φιλέω, I love, chalk-loving; **calcif'ugal** (*fugo*, I flee), shunning chalk, as heather; **calciv'orous** (*voro*, I devour), applied to Lichens which eat into their limestone matrix.

**Calda'rium** (Lat. warm bath-room) in botanic gardens signifies an intermediate or warm greenhouse.

**Calenda'rium** (Lat., an account-book) ~ **Flor'ae**, an arrangement of plants according to their period of flowering.

**Calend'ulin**, a mucilaginous substance from the marigold, *Calendula officinalis*, Linn.

**calica'lis** = CALYCALIS

**calica'tus** = CALYCATUS

**calicina'ris**, **calcina'rius** = CALYCINARIS, etc.

**calic'ular**, *calicula'ris* = CALYCULAR, etc.

**calic'ulate** = CALYCULATE.

**calicinianus** = CALYCINIANUS.

**Caliol'ogy** (καλία, a cabin; λόγος, discourse), juvenescence; the dynamics of the young cell (J. C. Arthur).

**Calix** = CALYX.

**calorit'ropic** (*calor*, heat; τροπή, a turn), term proposed by Klercker for thermotropic; **Calorit'ropism** = THERMOTROPISM.

**call'ose**, *callo'sus* (*callus*, hard skin), (1) bearing callosities; (2) hard and thick in texture; **Call'ose**, Mangin's term for a presumed essential constituent of the cell-wall; **Callos'ity**, a leathery or hard thickening of part of an organ; **callo'so-serra'tus**, when the serratures are callosities; **Call'us**, (1) an abnormally thickened part, as the base of a cutting; (2) a special deposit on sieve-plates; (3) a synonym of VERRUCA; (4) the hymenium of certain Fungi; (5) an extension of the flowering glume below its point of insertion, and grown to the axis or rhachilla of the spikelet.

**Calopo'dium** ‡ (καλός, fair, πούς, ποδός, foot), Rumph's term for SPATHE.

**Cal'pa** (κάλπη, an urn), Necker's term for the capsule of *Fontinalis*.

**cal'vous**, *cal'vus* (Lat., bald), naked, as an achene without pappus.

**Calyb'io** (καλύβιον, a cottage), Mirbel's name for a hard, one-celled, inferior, dry fruit, such as the acorn, or hazel-nut; **Calyb'ium** ‡ is a synonym.

**calycanth'emous** (κάλυξ, a cup; ἄνθος, a flower), (1) having the sepals converted wholly or partially into petals; (2) the corolla and stamens inserted in the calyx; **Calycanth'emy**, a montrosity of the calyx imitating an exterior corolla; **calyca'lis**, of or belonging to the calyx; **Cal'ycle**, *Calyc'ula*, a whorl of bracts exterior to the true calyx; **calyca'tus** (Lat.), furnished with a calyx; **Calyc'ia**, a stipitate and boat-shaped apothecium; **Calyciflor'ae** (*flos*, *floris*, a flower), plants having their petals and stamens aduate to the calyx; adj., **calyciflor'al**, **calyciflor'ous**; **calyc'iform**, (*forma*, shape), cup-shaped, applied to an indusium; **Cal'ycin**, a bitter, yellow, crystallizable substance from *Calicium chrysocephalum*, Ach., and other Lichens; **calycina'lis** (Lat.), **cal'ycine**, *calyci'nus*, (1) belonging to the calyx; (2) of the nature of a calyx; (3) denoting a calyx of unusual size; **calicina'rius** ‡, **calicina'ris** ‡, polyphylly of the calyx; **calycina'rius**, formed from the calyx; **Cal'ycle**, *Calyc'ulus*, the epicalyx, or involucre simulating an additional calyx, a whorl of bracts outside the true calyx; **cal'ycoid**, *calycoid'eus* (εἶδος, resemblance), resembling a calyx; **Calycoste'mon** (στήμων, a filament), a stamen seated on the calyx; **calyc'ulate**, *calycula'tus*, bearing bracts which imitate an external calyx; **Calyphy'omy** (φύομαι, I spring from), adhesion of the sepals to the petals.

**Calyp'tra** (*καλύπτρα*, a veil) or **Calyp'ter**, (1) the hood or cap of a Moss in fruit when it crowns the capsule, formed from the archegonial wall; (2) applied to any cap-like covering of a flower or fruit, as the extinguisher-shaped calyx of *Eschscholtzia*, or the lid which falls off on expansion of some Myrtaceae, as *Eucalyptus*; (3) Gomont's term for a thick membrane shutting off the apical cell of a trichome in Oscillarieae; (4) a term proposed by Van Tieghem and Douliot for that portion of the root-cap in lateral roots which belongs strictly to the root-system; (5) Tournefort's word for CARUNCLE; **calyp'trate**, *calyptra'tus*, bearing a calyptra; **calyp'triform**, *calyptriform'is* (*forma*, shape), shaped like an extinguisher; **calyptrimorph'ous** (*μορφή*, shape), a synonym of the last; **Calyp'trogen** (*γένος*, offspring), (1) the layer of cells from which the root-cap takes its origin, (2) the layer of tissue covering the young embryo, as in Ferns.

**Ca'lyx** (*κάλυξ*, a cup), (1) the outermost of the floral envelopes; **~adhe'rens**, when not separable from the ovary; **~ calycula'tus**, when surrounded by a ring of bracts; **~commu'nis**, the involucre of Composites; **~ infe'rior**, **~ li'ber**, when free from the ovary; **~supe'rior**, when adherent to the ovary; **~ Tube**, a tubular form of the calyx, due to the union of the sepals; (2) ‡ the receptacle of certain Fungi; (3) the "perianth" of Hepaticae, that is, the COLESULA (Hooker and Taylor).

**Cam'ara** (*καμάρα*, a vault), occasionally used for the cells of a fruit; **Camer'ula**, a diminutive of the foregoing; **cama'rius**, resembling a simple carpel, as the berry-like fruit of *Actaea*.

**camb'ial** (*cambio*, I change), relating to CAMBIUM; **camb'iform** (*forma*, shape), resembling cambium; **Camb'ium**, a layer of nascent tissue between the wood and bast, adding elements to both; formerly considered as a mere viscous mass; **~ Fi'bres**, the immediate derivatives of the cambium, partly formed woody fibres (Sanio); **~ Layer**, the formative tissue during active growth; **~ Ring**, the complete system of the cambium, separating the wood from the bast in the shoot; — **fascic'ular ~**, that which belongs to the vascular bundles; **interfascic'ular ~**, that which is formed between the vascular bundles, and the primary medullary rays.

**cameli'nus** (Lat.), camel-coloured, tawny.

**campana'ceus** (*campana*, a bell); **campan'iform**, *campaniform'is*; **campan'ulate**, *campanula'tus*, bell-shaped, applied to a corolla; Crozier adds **campanil'iform**.

**campes'ter** (Lat.) *campes'tris*, growing in fields, the second form is that usually found in botanic works; adj. **campes'tral**.

**Camph'or** a solid essential oil from *Cinnamomum Camphora*, T. Nees et Eberm., and other trees; **camphora'ceous** (+aceous); **camphor'ic**, pertaining to, or of the nature of camphor.

**camptod'romus** (*κάμπω*, I bend; *δρόμος*, course), venation in which the secondary veins curve towards the margins, but do not form loops; **camptot'ropal** (*τροπή*, a turn), an orthotropal ovule, but curved like a horse-shoe.

**campulit'ropal** (*καμπύλος*, curved; *τροπή*, a turn); **campulit'ropous**, *see* CAMPYLITROPAL, etc.; **campylod'romous**, *-mus* (*δρόμος*, a course), venation which has its primary veins curved in a more or less bowed form towards the leaf apex; **Campylosper'mous** *-mus* (*σπέρμα*, seed), having the albumen curved at the margin so as to form a longitudinal furrow; **campylot'ropal**, **campylot'ropous** (*τροπή*, a turn), applied to an ovule, one side of

which has grown faster than the other so as to bring its true apex (micropyle) near the hilum.

**Can'ada Bal'sam**, an oleo-resin obtained from *Abies balsamea*, Mill., much used in the preparation of microscopical specimens.

**Canal'**, *cana'lis* (Lat., pipe or channel), an internal channel; ~ **Cells**, an axial row of cells in the neck of the archegonium, ultimately forming a canal by disappearance of the septa, which becomes the way of access for antherozoids; ~ **Ra'phe**, modification of the raphe in Diatoms, with longitudinal fissure, as in *Surirella*; **canalic'ulate**, *canalicula'tus*, channelled, with a longitudinal groove; **Canalic'ulus** (Lat., a small channel), a diminutive of CANAL.

**can'cellate**, *cancella'tus* (Lat., latticed), as in *Clathrus*, and *Ouvirandra*.

**can'dicant**, *cand'icans* (Lat.), white, clear and shining.

**cand'idus** (Lat.), white, and shining; brilliant.

**Cane**, the stem of reeds, large grasses, and small palms; **Cane-sugar**, a sucrose, the crystallised product of Sugar-cane, Beetroot, *Sorghum*, etc. — **Sugar-cane**, *Saccharum officinarum*, Linn.: its chief fungus-diseases are **Cane Freckle**, ~ **Rust**, cause uncertain; ~ **Spume**, by *Strumella Sacchari*, Peck; ~ **Soot**, by *Macrosporium graminum*, Cooke.

**canella'ceous**, (1) pertaining to the order of which *Canella*, P. Br. is the type; (2) resembling cinnamon, Ital. Canella, in taste or shape.

**canes'cens**, *canes'cens* (Lat.), growing grey or hoary.

**Cank'er**, a disease in decidous leaved trees, ascribed to *Nectria ditissima*, Tul. shown by malformed rind, with swollen cushion-like margin, and depressed centre.

**Cantharoph'ilae** (*κάνθαρος*, a beetle, *φιλέω*, I love), plants which are fertilized by beetles, having showy colours, and abundance of pollen.

**ca'nus** (Lat.), hoary, grey.

**Caoutch'ouc**, pr. koot'shook, a substance occurring in the milky latex of many plants; it is allied to the Hydrocarbons.

**Cap**, (1) Grew's term for the husk of a nut; (2) the pileus of Hymenomycetous fungi; (3) the calyptra of Mosses; ~ **Cells**, the upper sister-cells of the embryo-sac in the ovule which are compressed as the embryo-sac develops and for a time figure as a cap on its apex; ~ **Fungi**, pileate Fungi, as the Mushroom. **Cellulose** ~, formation by protoplasm of cells of certain trichomes.

**capilla'ceous**, *-ceus*, **cap'illary**, *capilla'ris* (*capillus*, a hair), slender, comparable with a hair; *capilla'tus*, hairy; **capilla'tae Radi'ces**, roots with evident root-hairs; **Capil'lament**, *Capillament'um*, the filament of an anther; **capillamento'sus** (Lat.), comose; **Capillit'ium**, sterile, thread-like tubes or fibres growing amongst the spores in a sporogenous body, frequently forming a net, especially in Myxogastres; **Capil'lus**, the width of a hair, taken as $\frac{1}{12}$th of a line or about ·17 mm.

**Cap'italist**, a term applied to plants having a large reserve of material, and insect fertilized.

**cap'itate**, *capita'tus* (Lat., having a head), (1) pin-headed, as the stigma of a primrose; (2) growing in heads, as the flowers of Composites; **capitell'ate**, *capitella'tus*, diminutive of CAPITATE; **Capitell'um**, the capsule of Mosses; **capitiform'is** ‡ (*forma*, shape), shaped like a head, somewhat globose; **capit'ular** = CAPITELLATE (Crozier); **capit'uliform**, shaped somewhat like a head; **Capit'ulum** (Lat., a little head), (1) a close head of sessile flowers; (2) a term vaguely applied to the pileus, etc. of Fungi; (3) a rounded cell borne upon each of the manubria in the antheridium of *Chara*; head-cell.

**capno'des**, **capnoi'des** (*καπνώδης*, smoky), smoke-coloured.

**cap'reolate**, *capreola'tus* (*capreolus*, a tendril), having tendrils.

**Caprifica'tion**, *Caprifica'tio* (Lat.), (1) the fertilization of the fig by insects, branches of the wild fig being placed among the cultivated kind; the subsequent fertilization is attributed to the punctures of an hymenopterous insect; (2) fecundation by artificial means; **Caprifi'cus** (Lat.), the wild or "male" fig, the uncultivated form.

**Capsell'a** (*κάψα*, a box), Link's term for ACHENE.

**Cap'sicin**, an acrid alkaloid principle found in some species of *Capsicum*.

**Capsoma'nia** (*κάψα*, a box, *mania*, madness), a multiplication of pistils.

**Cap'sule**, *Cap'sula*, (1) a dry, dehiscent seed-vessel; (2) the theca of Mosses; (3) ‡ the perithecium or receptacle of Fungi; **cap'sular**, *capsula'ris*, possessing a fruit of the kind just mentioned; **cap'sulate**, enclosed in a capsule; **capsulife'rous**, *-rus*, (*fero*, I bear), bearing capsules.

**Cap'ut** (Lat. the head), the peridium of some Fungi; ~ **Florum** ‡ = CAPITULUM; ~ **Radi'cis**, the crown of the root; the obsolete stem or bud of herbaceous plants.

**Carbohy'drates** (Carbon + Hydrate), non-volatile solids, as arabic acid, cellulose, dextrin, starch, sugar; the non-saccharine members may be turned into sugars by boiling in dilute acids, usually into glucose (dextrose).

**Car'bon Diox'ide** = $CO_2$; **carbona'ceous** (+ aceous), consisting chiefly of substances in which carbon predominates; **carb'onised**, turned into nearly pure carbon by slow combustion, as charcoal.

**Car'cerule**, *Carceru'lus* (*carcer*, prison), Desvaux's name for a dry, indehiscent, many-celled, superior fruit, such as that of the lime-tree; (2) it has also been employed for the sporangia of some Fungi; **carceru'lar**, *carcerula'ris*, having a carcerule fruit.

**Carcino'des** (*καρκινῶδης*, cancerous disease) and **Carcino'ma** (*καρκίνωμα*, cancerous ulcer), have been used to denote CANKER and kindred diseases.

**Carcith'ium** ‡ or **Carcyth'ium** ‡ (*καρκινοῦσθαι*, to become entangled, as roots), Necker's word for MYCELIUM; **Carcy'tes**, ‡ = MYCELIUM.

**Carene** (Fr. Carène) = CARINA, keel; has been used for the keel or midrib in the leaves of grasses.

**Caricog'raphy** (*Carex*, *Caricis*, *γραφή*, writing), a treatise on Cyperaceae, sedges, from the genus *Carex*, the largest in the order; **Caricol'ogist** (*λόγος*, discourse), a writer on sedges.

**Ca'ries** (Lat. rottenness), putridity, decay.

**Cari'na** (Lat. keel); (1) the two anterior petals of a papilionaceous flower, or similar organ; (2) the keel of the glume of grasses; (3) the principal nerve of a sepal; **cari'nal**, relating to the keel in aestivation when the carina includes the other parts of the flower; ~ **Canal**, in *Equisetum*, a water canal on the inner side of the xylem, opposite a ridge on the surface of the stem; **carina'lis**, that side of the fruit of Umbelliferae which represents the carina, or principal nerve of the adherent calyx; **car'inate**, *carina'tus*, keeled; **carina'to-plica'tus**, plaited so that each fold resembles a keel, as the peristome of some Mosses.

**Cariop'side**, **Cariop'sis** (*κάρυον*, a nut, *ὄψις*, resemblance), a one-celled, one-seeded, superior fruit, with pericarp united to the seed; the fruit of cereals; **cariopsid'eus**, having a cariopsis as fruit, also spelled CARYOPSIS.

**ca'rious**, *cario'sus*, (Lat.) rotten, decayed.

**Car'mine**, the purest red pigment obtainable, without admixture of blue or yellow.

**carna'tion** (*carneus*, of flesh), flesh-coloured. [Wheat-ear Carnation is a monstrous state of that flower with multiplied bracts.]

**carn'eous**, *carn'eus* (Lat. of flesh), flesh-coloured; **Carno'sitas** (Lat.) fleshiness; **carn'ose**, **carn'ous**, *car-*

*no'sus* (Lat.) fleshy, pulpy; **carniv'orous** (*voro*, I devour) flesh-eating; applied to those plants which digest insects; **Caro** (Lat. flesh), (1) the fleshy parts of fruits; (2) the tissue of some Fungi.

**Caro'tin**, the red colouring matter of chromoplasts; name from *Daucus Carota*, Linn.

**Car'oubin**, a carbohydrate first observed in the Carob; **Caroub'inase**, a hydrolytic enzyme formed during germination in seeds of *Ceratonia Siliqua*, Linn.; French, Caroube.

**Carpade'lium** ‡ **Carpade'lus** ‡ (*καρπὸς*, fruit, *ἄδηλος*, not manifest) = CREMOCARP.

**Carp'el**, *Carpell'um* (*καρπὸς*, fruit), a simple pistil, or element of a compound pistil, answering to a single leaf; a female sporophyll; **carpell'ary**, *carpella'ris*, *carp'icus*, relating to a carpel; **Carp'id**, *Carpid'ium*, = diminutive of CARPEL; **Carp'ium**, (1) the oogonium modified by fertilization, which remains as an envelope around the embryo; (2) ‡ = CARPEL; **Carpoasci** (*ἀσκὸς*, a wine-skin), the more complex Ascomycetous Fungi, all, except the Exoascaceae (Kerner); **Carpoclo'nium** (*κλωνίον*, a young shoot), "a free case or receptacle of spores found in certain Algals" (Lindley); **Carpoderm'is** (*δέρμα*, skin), Bischoff's emendation of PERICARP; **Carpo'des**, *Carpo'dium*, pl. *Carpo'dia*, abortive carpels, as in *Typha;* **Carp'ogam** (*γάμος*, marriage), the female organ in a procarp; producing a cystocarp; **Carpog'amy**, the process itself; **carpogen'ic**, **carpog'enous** (*γένος*, race), producing fruit; in Florideae, applied to special cells of the carpogonium; **Carp'ogone**, **Carpogon'ium** (*γονὴ*, offspring), (1) part of a procarp of carpogenous cells resulting in a sporocarp after fertilization; (2) in Ascomycetes = ARCHICARP; **Carp'olite**, **Carp'olith** (*λίθος*, stone), a fossilized fruit; or casts, found in the coal measures, probably of Gymnospermous origin; **Carpol'ogist**, *Carpol'ogus* (*λόγος*, discourse), a specialist in fruits; **Carpol'ogy**, classification of fruits; **Carpo'ma** ‡ "a collection of spermangia" (Lindley), *i.e.* a compound sporocarp; **Carpoma'nia** (*μανία*, frenzy), a disease of grittiness in fruit; **Carpoma'ny**, pistillody, or substitution of pistils for stamens; **Carpomorph'a** ‡ (*μορφὴ*, shape), apothecia of Lichens, resembling true fruits.

**Car'pon** (*καρπὸς*, fruit), in Greek compounds = fruit; **Carp'ophore**, *Carpophor'ium* (*φορέω*, I carry); (1) the stalk of a sporocarp; (2) that part of the receptacle which is prolonged between the carpels as a central axis, as in *Ceramium;* (3) used by Fayod as inclusive of stipe, pileus and lamellae, of fungi; **Carp'ophyll**, *Carpophyll'um* (*φύλλον*, leaf), synonym of CARPEL; **Carp'ophytes** (*φυτὸν*, a plant), Phanerogams; **Carpopo'dium** ‡ (*podium*, an elevation), fruit-stalk; **Carp'osperm** (*σπέρμα*, seed), the impregnated oosphere of Algae; **Carposporan'gia** (*σπορὰ*, a seed, *ἀγγεῖον*, a vessel), differentiated sporangia in the cystocarp of Rhodophyceae; **Carp'ospore** (*σπορὰ*, a seed); (1) spore; (2) a spherical uninuclear spore formed in a sporocarp, arising from the swollen tips of branched filaments resulting from the fertilization of the carpogonium; **Carpospo'reae**, one of Cohn's, also Sachs's main divisions of Thallophytes, of plants which produce spore-fruit as the result of fertilization; **carpospor'ic**, resembling a carpospore; **Carp'ostome**, *Carposto'mium* (*στόμα*, the mouth), the opening in the cystocarp of some Algae; **Carpopto'sis** (*πτῶσις*, falling), abnormal falling of the fruit; **carpot'ropic** (*τροπὴ*, a turn), used of movements for protection of the fruit, or its dissemination.

**Car'ragheen Moss**, chiefly of *Chondrus crispus*, Ag.

**Carth'amine**, red colouring matter from flowers of *Carthamus tinctorius*, Linn.

**cartilag'inous**, *cartilagin'eus* (Lat., gristly), hard and tough, as the skin of an apple-pip.

**Carunc'le**, *Carunc'ula* (Lat., a little piece of flesh), a wart or protuberance near the hilum of a seed; **carunc'ulate**, *caruncula'tus*, possessing a caruncle.

**Caryokine'sis** or **Caryocine'sis** (Crozier) = KARYOKINESIS; nuclear division.

**caryolyt'ic** (*κάρυον*, a nut, *λύσις*, a loosing), relating to nuclear dissolution.

**caryophylla'ceous**, *-ceus*; **caryophyll'eous**, **-lous**, used of a corolla having petals with a long claw as in *Dianthus Caryophyllus*, Linn., whence the name; **caryophylla'tus**, = the same.

**Car'yoplasm** (*κάρυον*, a nut = nucleus, *πλάσμα*, moulded), Vuillemin's term for the plasma of the nucleus; **Caryop'sis** (*ὄψις*, resemblance) = CARIOPSIS; **Car'yosomes** (*σῶμα*, the body), the constituents of the nucleus (Vuillemin).

**Cas'ein**, see PLANT-CASEIN.

**Casque** = GALEA.

**cassid'eous**, *-eus* (*cassis*, a helmet), helmet-shaped, as the upper sepal in *Aconitum*.

**cas'sus** (Lat., empty), empty, as an anther destitute of pollen.

**casta'neus** (Lat.), chestnut-coloured.

**cast'ing**, prematurely shedding leaves, or fruit.

**cas'trate**, *castra'tus* (Lat., gelded), said of a defective part, as a filament without an anther; **Castra'tion**, in botany; (1) removal of anthers for artificial crossing; (2) the action of *Ustilago*, etc. on *Lychnis* and allied genera; divided into **amphig'enous** ~, transformation in either stamens or pistils; **androg'enous** ~, production of anthers; **thelyg'ynous**, production of pistils in male-host.

**Cas'ual** (*casualis*, fortuitous), H. C. Watson's term for an occasional weed of cultivation, which is not naturalised.

**catabol'ic** (*κατά*, down; *βόλος*, a throw), adj. of **Catab'olism**, destructive metabolism of the protoplasm, or the formation of simpler substances from more complex, accompanied by a conversion of potential into kinetic energy; also spelt KATABOLISM; **Catacle'sium** ‡ (*κλῆσις*, a shutting up) = DICLESIUM; **Catacoroll'a** (*corolla*, a little garland), a second corolla formed exterior to the true one; resembling a hose-in-hose flower; **catad'romous** (*δρόμος*, course), Luerssen's term when the first set of nerves in each segment of a Fern frond is given off on the basal side of the mid-rib, as in *Osmunda*; **Catagen'esis** (*γένεσις*, a beginning), retrogressive evolution, by loss of attributes or simplification of structure; **Catal'ysis** (*λύσις*, a loosing), chemical changes effected by a substance which does not itself undergo change; ferment action; **catalyt'ic**, modification of chemical force which causes catalysis; **catametad'romous** (+metadromous) in Ferns, when they are sometimes catadromous and sometimes metadromous, which may occur in the same species; **catapet'alous**, *-us*, (*πέταλον*, a flower-leaf), where petals are united only by cohesion with united stamen, as in *Malva*; **Cat'aphyll**, **Cataphyll'a**, pl. (*φύλλον*, leaf), the early leaf-forms of a plant or shoot, as cotyledons, bud-scales, rhizome-scales, etc.; in German, Niederblätter; **cataphyll'ary**, of the nature of the foregoing; ~**Leaves**, = CATAPHYLLS.

**Cat'apult Fruit**; those fruits dispersing seeds or fruit segments by the elasticity of their peduncles.

**Cat'echu**, pr. Cat'eshoo, cutch, the heart-wood of *Acacia Catechu*, Willd., powerfully astringent from its rich tannin-contents.

**cat'enate** (*catena*, a chain), the coherency of Diatom frustules in a connected chain; **caten'ulate**, *catenula'tus*, formed of parts united or linked as in a chain.

**Cath'edrus** (*καθέδρα*, a chair), a part growing between the angles of a stem;

**cathod'al, cathod'ic** (*κατὰ*, down; *ὁδός*, a way) = KATHODIC.

**Cat'kin**, a deciduous spike, consisting of unisexual apetalous flowers, an amentum; the male flowers of Cycads and Conifers are erroneously styled catkins; **Cat'ulus** (Lat. puppy), ‡ a synonym of CATKIN.

**Cau'da** (Lat.), a tail, any tail-like appendage; **caud'ate**, *cauda'tus*, tailed.

**Cau'dex** (Lat.), the axis of a plant, consisting of stem and root; ~ **descen'dens**, the root; ~ **Radi'cis**, the root-tip; ~ **re'pens** ‡ = RHIZOME; **caud'ici - contin'uus** ‡ continuous with the stem, used of those leaves which have no articulation with the stem; **caudic'iform** (*forma*, shape), like a caudex in form; **Cau'dicle**, *caudic'ula*, the cartilaginous strap which connects certain pollen-masses to the stigma, as in Orchids.

**caulesc'ent**, *-eus* (*caulis*, a stalk), becoming stalked, where the stalk is clearly apparent; **caul'icle, caul'icule**, *caulic'ulus*, a diminutive stalk; (1) a small stem produced on the neck of a root without the previous production of a leaf; (2) the imaginary space between the radicle and the cotyledons of an embryo, now termed the hypocotyl; (3) the stipe of certain Fungi; **caulic'olous** (*colo*, I dwell), applied to Fungi which live on stems; **caulif'erous** (*fero*, I bear), bearing a stalk; **caul'iform** (*forma*, shape), having the shape of a stalk; **Caul'iflower** (+Flower), hypertrophy of the flower-stalk, accompanied by defective flowers; **caulig'enous** (*γένος*, race), arising from a stem; **caulig'erous** (*gero*, I bear), borne on a stem; **Caulid'ium**, term proposed by Bower to express the leaf in the oophore generation; its analogue in the sporophore generation is CAULOME; **caul'inar, caul'inary**, *caulina'ris, -rius*; = CAULINE; **caul'ine**, *cauli'nus*, belonging to the stem or arising from it, ~ **Bun'dles**, vascular bundles growing acropetally with the stem, having no direct communication with the bundles which pass into the leaves.

**Cau'lis** (Lat.), a stem; the ascending axis, restricted to the above-ground portion in its normal state; ~ **deliquesc'ens**, ‡ a stem which branches irregularly; ~ **excurr'ens**, a stem shooting straight upwards, having side branches as in *Abies*.

**caulocarp'ous**, *caulocarp'eus, -picus* (*καυλὸς*, stem, *καρπὸς*, fruit), bearing fruit repeatedly, as trees and shrubs; **Caul'ode** (*εἶδος*, resemblance), a portion of a Thallophyte which simulates a stem; **Caulo'ma** ‡ (1) the stem of a palm; (2) the stem-like portion of such Algae as *Fuci*; **Caul'ome** the stem as an abstract entity, the leaf-developing axis; Bower suggests its restriction to the sporophore generation only; **Caul'omer** (*μέρος*, a part), a secondary axis in a sympodium; **Caulotax'is** (*τάξις*, arrangement), the order of branches upon a stem.

**caust'icus** (Lat. burning), biting in taste, as Cayenne Pepper.

**caverna'rius** (*caverna*, a cave), growing in caves; **Cavern'uli**, the pores of such Fungi as *Polyporus*.

**Cav'itus** ‡ (*cavus*, hollow), and *Cavus* are given by Lindley as respectively, the perithecium and peridium of some Fungi; also **Cav'us sup'erus**, defined by him as the hymenium of certain Fungi.

**Cecidi'um** (*κηκὶς*, a gall), the galls produced by Fungi or insects, the consequence of infection being an abnormal growth.

**Cell**, *Cell'ula* (Lat. a small apartment), (1) an independent unit of protoplasm, strictly with a single nucleus, contained in a chamber of cellulose, etc., which originally was recognised and called cell, now ~ **-Wall**; (2) the cavity of an anther, otherwise anther-lobe; (3) the cavity of an ovary or pericarp,

containing the ovules or seeds; ~ **Bun'dles**, a band or bundle of similar cells, as the bast fibre in dicotyledons; ~ **Con'tents**, of two kinds, living or protoplasmic, and non-living, such as starch, fats, proteids, crystals, cell-sap, and the substances dissolved in it; ~ **Divis'ion**, in free cell-division, several daughter-cells are formed in the cavity of the mother-cell; in ordinary cell division, as a rule only two daughter-cells are formed, usually followed by a subsequent further division of each; ~ **Fam'ily**, a group of cells of common origin, a colony or coenobium; ~ **Fi'bres**, the achromatic filaments which form the nuclear spindle in nuclear-division; ~ **Forma'tion**, the construction of a new cell by reorganisation of the protoplasmic energid, with or without division of the cytoplasm; ~ **Fu'sions**, cells united by absorption or perforation of transverse walls as Sieve-vessels; ~ **Groups**, associations of similar cells, as the sclerenchyma in the pulp of the pear, or in cork; ~ **Mas'ses**, when cells are united in all directions of space, not having necessarily any definite form; ~ **Multiplica'tion** takes place by the formation of two or more protoplasmic bodies out of one; ~ **Nu'cleus**, an organised structure within the cell, the active agent in division, usually spherical in form, and of higher refractive power than the rest of the cell-contents; ~ **Plate**, formed by the thickening of threads of kinoplasm, marking out the future septa; ~ **Rows**, have the cells in contact by their ends, thus making a filament; ~ **Sap**, a watery solution of various substances, salts, sugars, alkaloids, and the like; ~ **Tissue**, distinguished from vascular tissue by being made up of cells only; ~ **Sur'faces**, where the cells form a single layer, as in some Algae; ~ **Wall**, a closed membrane, formed of cellulose, and a small proportion of mineral substances, originated by the layer of protoplasm which lines it, frequently thickened by secondary deposits. **Primord'ial** ~, a cell previous to the creation of a cell-wall.

**Cel'la** (Lat., storeroom), (1) Scopoli's name for the fruit of *Couroupita*, Aubl.; (2) ‡ a form of perithecium in Fungi (Lindley); **cellif'erous** (*fero*, I bear), bearing or producing cells.

**Cel'lul** (*cellula*, a cell), Blair's term for anther; **cel'lular**, *cellula'ris*, consisting of cells, spongy: ~ **Bark**, ~ **En'velope**, the middle layer of the bark, mesophloeum; ~ **Plants**, plants which do not possess vascular tissue; non-vascular Cryptogams; ~ **Spore** = SPORIDESM; **Cellula'res**; (1) plants which are built up of cells only, as those last mentioned; (2) recently the term has been applied to all plants built up of cells, in opposition to non-cellular or unicellular; **Cell'ule**, *Cell'ula*, diminutive of cell; **cellulif'erous**, (*fero*, I bear), bearing or producing cellules; **Cell'ulin**, Pringsheim's term for a modification of cellulose; ~ **Grains**, bodies found in vegetative hyphae; **Cellulo'sae**, Corda's name for SPORIDESM.

**Cell'ulose** (*cellula*, a cell), (1) a carbohydrate, the chief organic base of the cell-wall; (2) Diatom valves composed of cellules are termed cellulose, a synonym of CELLULAR; **Cell'uloses**, a generic term for the carbohydrate group above mentioned; divided by chemists into sub-groups, as, **Adipocell'uloses** (*adeps*, *adipis*, fat), consisting of cuticular tissues of leaves and fruits and of cork; **Hemicell'uloses**, all carbohydrates in the cell-wall which are not coloured blue by chlor-zinc-iodide, such as reserve-cellulose, etc.; **Lignocell'uloses**, lignin combined with cellulose, as in Jute fibre; **Metacell'uloses**, found in Fungi and

Lichens, the fungine of Braconnot; **Paracell'uloses**, the cellular tissue and epidermal cells of leaves; **Pectocell'uloses**, composed of pectic acids and cellulose, such as the purified bast of Russian flax.—Other modifications are named but not characterised by Messrs Cross and Bevan in their work "Cellulose," 1895, as **Cuto-**, **Hydra-**, **Hydro-**, **Muco-**, **Nitro-**, **Pseudo-celluloses**. **Fung'us-cell'ulose** = CHITIN; **Reserve ~**, cellulose which is stored up as a food-supply; **cellulo'so-plic'ate**, folded so as to form small cells (Phillips); **Cellulo'siole**, a mixture of cellulose and pectose, composing the primitive cell-wall (Green).

**Cement'-Disk**, the retinaculum in Orchids.

**Cementa'tion**, union of the membranes of hyphae by a slip of cementing substance, concrescence; in German, Verklebung.

**Cenanth'y** (*κενός*, empty, *ἄνθος*, a flower), suppression of the stamens and pistils, leaving the perianth empty.

**ceno'biar**, *cenobio'neus*, *cenobionar'is*, *Ceno'bium*, see COENOBIAR, etc.

**cenogenet'ic** (*κενός*, void, *γενέτηρ*, a parent), secondary (Crozier).

**centifo'lious** (*centum*, a hundred; *folium*, a leaf), literally having a hundred leaves; actually, more than can be readily counted; **Cent'imetre**, *Centime'trum*, .3937 of an English inch, roughly, $\frac{4}{10}$ths.

**central** (*centrum*, the middle), relating to the centre of a body; **~ Cell**, of the archegonium, that in the venter from which the oosphere, and ventral canal-cell arise; **~ Cord**, a series of cells in the leaves and other parts of Mosses, which simulates a vessel; **~ Cylinder**, in stems and roots the portion within the endodermis; **Cent're**, in Diatoms, the middle point of the pervalvar axis; **cent'ric**, in the middle; **centrif'ugal** (*fugo*, I flee), tending outwards or developing from the centre outwards; **centrip'etal** (*peto*, I seek), developing towards the centre from without; **Centrogen'esis** (*γένεσις*, beginning), the rotate or peripheral type of form assumed by plants (L. H. Bailey); adj. **centrogen'ic**; *cf.* DIPLEUROGENESIS.

**Cent'ron** (*κέντρον*, a sharp point), in compounds = Spur.

**Cent'rum** (Lat.), the centre of a solid body; **Cent'rosome** (*σῶμα*, body), minute bodies believed to have directive influence in nuclear division; the central particle of the centrosphere; **Cent'rospheres** (*σφαῖρα*, a sphere), two small colourless bodies near the nucleus, imbedded in the cytoplasm, having a centrosome in each; **centroxyl'ic** (*ξύλον*, wood), referring to **Centrox'yly**, centrifugal primary woody structure (Van Tieghem).

**Cent'ury** (*centuria*, a hundred), in sets of dried plants, each hundred is styled a century.

**cepa'ceous**, *-ceus* (*cepa*, an onion), having the taste or smell of garlic, alliaceous.

**Cephalanth'ium** ‡ (*κεφαλή*, a head, *ἄνθος*, a flower), the capitulum or head of composites, anthodium; **Cepha'lium**, a woody enlargement at the apex of the stem in some Cacteae, from which the flowers appear; **ceph'alodine**, forming a head (Leighton); **Cephalo'dium**, (1) a knoblike shield as in the genus *Scyphophorus*; (2) the capitulum of Composites; (3) peculiarly shaped, branched or convex outgrowth of a Lichen-thallus, in which algal cells are situated; (4) a synonym of TUBERCULUM; **ceph'aloid**, **cephaloid'eous**, *-deus* (*εἶδος*, resemblance), capitate; **Cephalo'nion Gall**, a sac-like gall, joined to the leaf by a narrow neck (Kerner).

**Cephaloph'orum** (*φορέω*, I carry), (1) the receptacle, or (2), the stipe of some Fungi.

**cera'ceous**, *-eus* (*cereus*, Lat.), waxy, (1) in appearance, or (2) colour, that of unbleached wax.

**Ceramid'ium** (*κεράμιον*, a jar), synonym of CYSTOCARP.

**Cer'asin**, a gummy exudation from plum and cherry trees, swelling in water but not dissolving; the name is from *Prunus Cerasus*, Linn.

**Ceratench'yma** (*κέρας*, a horn; *ἔγχυμα*, poured in), the tissue of effete sieve-tubes which becomes horny in texture.

**Cer'atrin**, the bitter principle of "Iceland Moss," *Cetraria islandica*, Linn.

**Cera'tium** (*κέρας*, a horn), a long slender one-celled, two-valved, superior fruit, as in *Hypecoum*, "capsula siliquiformis"; **Ceratoma'nia** (*μανία*, frenzy), monstrous production of horn-like or hooded structures in the flower.

**Cercid'ium** (*κερκίδιον*, a small comb), the mycelium of some Fungi.

**Ce'real**, *cerea'lis* (*Ceres*, goddess of agriculture), any Gramineae whose seeds serve as food; **Cerea'lia**, corn-plants generally; **Ce'reum**, **Ce'rium**, **Ce'rio**, = CARIOPSIS.

**cer'ebriform** (*cerebrum*, the brain; *forma*, shape), having an irregular brain-like appearance, as the kernel of a walnut.

**Ce'rin**, **Ce'rine** (*cera*, wax), a substance stated to be a constituent of cork.

**cerif'erous** (*cera*, wax; *fero*, I bear), wax-producing; **ceri'nus** (Lat.), the colour of yellow wax.

**cern'uous**, *cern'uus* (Lat.), nodding, applied to such flowers as *Narcissus*, or Coltsfoot when in fruit.

**cerussa'tus** (Lat.), white as though painted with white lead.

**cerv'ine**, *cervi'nus*, *cervic'olor* (*cervus*, a stag), dark tawny colour.

**Cerv'ix** (Lat., the neck) = RHIZOME.

**ce'sious** (*caesius*, the grey of the eye), blue-grey, usually spelled CAESIOUS.

**cespitit'ious**, pr. cespitish'us; **cesp'itose**, *-tous* (*cespes*, turf), pertaining to turf, or growing in tufts; **cespit'ulose**, somewhat tufted; *cf.* CAESPES.

**Ce'trarin**, a principle from several species of the genus *Cetraria*.

**Chae'ta** (*χαίτη*, a bristle), the slender sporophore of Mosses, the seta.

**Chaff**, (1) small membranous scales, degenerate bracts, in many Compositae; (2) the outer envelopes of cereal grains; **chaff'y**, paleaceous.

**Chain-gem'ma** (*gemma*, a bud), in Fungi, having the form of a septate confervoid filament, the segments of which are capable of growth; termed also SPROUT-GEMMA.

**Chala'za** (*χάλαζα*, small tubercle), that part of the ovule or seed where the nucellus joins the integuments; it is the base of the nucleus and is always opposite the upper end of the cotyledons; **chalazi'nus**, like a chalaza, or pertaining thereto, **chala'zian**; **Chala'zogams** (*γάμος*, marriage), plants which are fertilized through the chalaza, and not the foramen, as *Casuarina*, and many Cupuliferae; **Chalazog'amy**, fertilization by the chalaza; adj. **chalazogam'ic**.

**Chalk-glands**, multicellular glands which deposit calcareous matter as in some Saxifrages, the secretion escaping through a special channel, the water-pore; ~ **White**, pure white, cretaceous.

**chalyb'eus** (Lat. of steel), steel-grey, or lead-coloured.

**Chamber-fluid**, the Kammerflüssigkeit of Crato, comprising cell-sap and enchylema between lamellae of protoplasm.

**Chambered-fibres**, fibres which have become septate and seemingly multicellular, as in the secondary wood of Dicotyledons; ~ **Ovary**, when the margins of the carpels project into the interior to form incomplete longitudinal dissepiments, the ovary remaining unilocular.

**chan'nelled**, hollowed out like a gutter, as in many leaf-stalks.

**Chap'let**, a series of objects arranged like beads on a string, as the spores of *Cystopus* (Crozier).

**Char'acine**, a species of camphor from terrestrial Algae, as *Palmella*,

*Oscillaria*, etc.; it smells like *Chara*, hence the name.

**characi'nus** ‡ *Chara*-like, composed of a single, or a few parallel tubes.

**Char'acter** (Lat., a mark), the technical difference whereby allied forms are distinguished, as ordinal, generic, specific, and so on.

**charta'ceous**, *-ceus* (*charta*, paper + aceous), papery.

**Chasmog'amy** (χάσμα, a gaping fissure; γάμος, marriage), the opening of the perianth at the time of flowering, as opposed to cleistogamic; adj. **chasmogam'ic**.

**Check**, an experiment or observation for confirmation, frequently the word "Control" is used for this.

**Che'mo-Aesthe'sia** (chem + αἴσθησις, perception by sense), term employed by Czapek to express the capacity of a plant-organ to respond to chemical stimuli; **Chemol'ysis** (λύσις, a loosing), chemical solution or analysis; **Chemotax'is** (τάξις, order), the attraction of bacteria, antherozoids, etc., by certain substances; sometimes spelled **chemiotax'is**; adj. **chemotact'ic**; **neg'ative Chemotax'is**, repulsion instead of attraction.

**chermesi'nus** (Lat. dyed with Chermes), crimson.

**Cheiloma'nia** (χεῖλος, lip; μανία, frenzy), Morren's term for the doubling of the lip in Orchids, as in *Orchis Morio*, Linn.

**Chila'rium** (χειλάριον, a lip), the boundary of a small pit in the testa of *Phaseolus*, of two moveable valves, which, by hygrometric movements cause the rupture of the testa; **chi'lary Lay'er**, the investment of the seed which contains the chilarium.

**chi'lding**, proliferous.

**Chi'na** (Ital.), (1) a synonym for QUININE; (2) the bark of *Cinchona*, supplying valuable febrifuges and tonics.

**Chinin'** = QUININE.

**chionoph'ilous** (χιών, snow; φιλέω, I love), F. Ludwig's term for the winter-leaves of *Helleborus foetidus*, Linn.; **chionoph'obous** (φόβος, fear, dismay), the same author's word for the summer-leaves of the same plant.

**Chi'tin** (χιτών, coat of mail), a substance allied to horn, which forms the protective covering of many insects such as beetles, identified as being of the same composition as Fungus-cellulose.

**Chlamydogonid'ium** (χλαμύς, χλαμύδος, a cloak; γονή, race, offspring), unicellular gemmae of certain Fungi, which are relatively large and thick-walled, and adapted for a period of quiescence before vegetating; **Chlam'ydospore**, a spore having a very thick membrane.

**Chloram'ylite** (χλωρός, grass green, ἄμυλον, fine flour), Belzung's term for chlorophyll granules derived from the transformation of starch; **Chlor'anthy** (ἄνθος, a flower), the change of all or most parts of the flower into leaf-like organs, frondescence; **chloras'cens**, green, inclining to yellow; **Chlorench'yma** (ἔγχυμα, an infusion), assimilating tissues; **Chlor'in**, used by Kraus to denote the green constituent of chlorophyll; **chlori'nus**, yellowish green; **Chlor'is**, used as the title of a work on the plants of a district, analogous to Flora; **chloroch'rous** (χρόα, complexion), having a green skin; **Chlorofu'cine** (φῦκος, *fucus*, seaweed), a chlorophyll of a clear yellowish-green colour (Sorby); **chlorophae'us** (φαιός, dun coloured), yellow-green as the colouring matter of Algae; **Chlorogonid'ium** (γονή, offspring), the green gonidia of Lichens, as distinguished from the chrysogonidia; **chlorogon'imus** (γόνιμος, fruitful), applied to the gonidial layer in Lichens; **Chloroleuc'ite** (λευκός, pale), Van Tieghem's term for chlorophyll granule, by Belzung restricted to those which are formed from protoplasm, albuminous; syn. Chloroplastid (A. Schimper), Autoplast (A. Meyer); **Chlor'ophyll** (φύλλον, leaf), the green colour-

ing matter of plants; ~ **Bod'y**, ~ **Cor'puscle**, ~ **Grain**, ~ **Gran'ule**, a proteid or plastid in the cells of plants, usually of a green colour; *cf.* CHLOROLEUCITE, etc.; ~ **Ve'sicles**, chlorophyll granules; **chlorophylla'ceous** (+aceous), applied to cells which contain chlorophyll, in contra-distinction to those which do not, and are consequently colourless; **Chloroph'ylline**, the green principle of chlorophyll; **chlorophyll'ose**, containing chlorophyll; **Chlor'oplast**, **Chloroplast'id** (πλαστὸς, moulded), the plastids or granules of protoplasm which are of a green colour; **Chloroplast'in**, Schwarz's term for a proteid constituting the ground substance of the chlorophyll granule; **Chlororu'fin** (*rufus*, reddish), a reduced chlorophyll, the red pigment of Chlorophyceae, so named by Rostafinski; **Chloro'sis**, a disease, shown by loss of colour; **chlorot'ic**, *chlorot'icus*, greenish in colour; **Chlorovaporiza'tion** (*vaporatio*, a reeking), a function analogous to transpiration, but it proceeds only from the chloroleucites (Van Tieghem).

**Chord'a** (Lat., a cord), **pistilla'ris**, the line of tissue between the stigma and the cavity of the ovary; **chorda'ceous** ‡ (+aceous), having the figure of a rope.

**chordorrhi'zal** (χορδὴ, catgut; ῥίζα, a root), where the rootstock produces numerous flowering stems one before the other from its sides, (Syme) as in *Carex chordorrhiza*, Linn. f.

**chor'ion** (χωρίον, a caul), (1) Malpighi's term for the pulpy matter which fills the young ovule, and is absorbed during development; (2) ‡ a carpel; **Choriona'rius**, ‡ = ETAERIO.

**choriphell'oid** (χωρὶς, separate; φελλὸς, cork bark), applied to the separated suberized cells and lenticels (Klebahn); **choripet'alous**, *-us* (πέταλον, a flower leaf), having petals separate, polypetalous; **choriphyll'ous** (φύλλον, a leaf), having separate leaves, used of the floral members; **chorisep'alous**, *-us* (sepal), with separate sepals, polysepalous; **chorisolepid'eus** ‡ (λεπὶς, λεπίδος, a scale), when the scales of the involucre of Composites are distinct from each other; **Chor'isis**, the separation of a leaf or phylloid member into more than one, dédoublement, doubling; **collateral** ~, when the plane of separation is antero-posterior; **par'allel** ~, the plane of separation lateral; **choristophyll'ous**, *-us* (φύλλον, a leaf), separate leaved.

**Chortonom'ia** ‡ (χόρτος, green herbage; νόμος, law), "The art of making an herbarium."

**chromat'ic** (χρῶμα, colour), relating to colour; ~ **Thread**, the filiform body in nuclear division, which breaks up into CHROMOSOMES; **Chromatid'ium**, ‡ the colouring matter of plants; **Chro'matin** (Flemming), that portion of the nucleus which readily takes artificial staining, termed Nuclein by Strasburger; **Chromatol'ysis** (λύσις, a loosing), Cavara's term for the condensation of nuclear chromatin in a homogenous mass, which afterwards subdivides; **Chro'matomere** (μέρος, a part) = CHROMOSOME; **Chromat'ophore** (φορέω, I carry), a collective term for the various plastids, chloro-, chromo-, leucoplastids; **Chro'matoplasm** (πλάσμα, moulded), the protoplasm of the colouring and allied substances (Strasburger); **Chromid'ium**, the gonidium of a Lichen; **Chro'mism**, an abnormal colouring, as of leaves; **Chro'moblast**, an error of some writers for CHROMOPLAST; **chromogen'ic**, **chromog'enous** (γένος offspring), colour-producing, as some bacteria; **chromop'arous** (*pario*, I bring forth), applied to bacteria which are usually colourless, but excrete useless colouring (Beyerinck); **chromoph'orous**

(*φορέω*, I carry), said of those bacteria, whose pigmentation is an integral part of their organism ; **Chro'mophyll** (*φύλλον*, a leaf), any substance which colours plant-cells; **Chromoleuc'ite** (*λευκός*, white), Van Tieghem's name for protoplasmic colour granules ; **Chro'moplast** (A. Meyer). **Chromoplast'id** (A. Schimper) (*πλάστος*, moulded), are synonyms for granules containing other colouring than chlorophyll ; **Chro'mosomes** (*σῶμα*, a body), fibrillar bodies of definite number formed during nuclear division, dividing by fission into new groups, and contributing to form the daughter nuclei ; **Daughter ~**, secondary or derived chromosomes ; **Chro'mule, Chro'mula**, colouring matter of the plant, other than chlorophyll, applied especially to petals.

**Chronizo'ospore** (*χρόνος*, time ; *ζωὸς*, living; *σπορὰ*, a seed), a microzoogonidium produced by *Hydrodictyon*, which rests for some weeks before germinating ; also called **Chron'ispore** (Crozier).

**chroococ'coid**, resembling *Chroococcus;* **chroococca'ceous**, allied to the same genus.

**chroole'poid**, like the genus *Chrolepis ;* consisting of yellow scales.

**chrysaloi'deus** (*chrysalis*, a pupa ; *εἶδος* resemblance), rolled up and folded up at the same time ; wrapped up as an insect pupa or chrysalis.

**chrysan'thine** (*χρύσος*, gold ; *ἄνθος*, a flower), yellow flowered ; **chrysell'us**, somewhat golden-hued ; **chry'seus**, yellow as gold ; **chrysi'tes** (Lat., a precious stone), gold-coloured; **chrysoch'rous** (*χρώς*, skin), having a yellow skin ; **Chrysogonid'ium** (*γονή*, offspring), a yellow gonidium of Lichens ; **chrysogon'imus** (*γόνιμος*, fruitful), the layer of yellow gonidia in some Lichens ; **Chry'sophan** (*φαίνω*, I show) occurs in *Physcia parietina* De Not., etc., as gold-coloured crystals ; also known as **chrysophan'ic Ac'id ; Chry'sophyll** (*φύλλον*, a leaf), a yellow colouring matter from leaves ; **Chrysorham'nin**, a yellow substance from unripe buckthorn berries, *Rhamnus catharticus*, Linn. ; **Chrysotan'nin** (+TANNIN), a group of colouring matters in plants, when oxidized giving rise to brown tints in autumn foliage.

**chymif'erus** (*χύμα*, juice ; *fero*, I bear), **chymif'era va'sa**, ‡ Hedwig's term for an imaginary "sap-thread" rolled round a tube to form a trachеid or spiral vessel.

**Chytridio'sis**, a disease due to *Cladochytrium viticolum*, Prunet.

**Cic'atrice**, *Cicatric'ula*, *Cica'trix* (Lat., a scar), the mark left by the separation of one part from another, as the leaf ; **cicatrisa'tus, cic'atricose**, *cicatrico'sus*, scarred or scarry.

**Cicin'nus** (*κίκιννος*, a ringlet), =CINCINNUS.

**Ciench'yma** (possibly, *κίω*, I go; *ἔγχυμα*, an infusion), a system of intercellular spaces (Köhler, fide Crozier).

**Cil'ia**, pl. of **Cil'ium** (Lat., an eyelash), (1) Vibratile whip-like processes of protoplasm by which zoospores and similar bodies move ; (2) the hair-like processes in the endostome in Mosses ; (3) the marginal hairs of *Luzula ;* **cilia'ris** (Lat.), like an eyelash, or short hair ; **cil'iate**, *cilia'tus*, fringed with hairs; **cilia'todenta'tus**, the teeth finely serrate, as if fringed; **cil'iiform** (*forma*, shape), resembling cilia ; **cil'iograde** (*gradus*, a step), moving by means of cilia (Crozier) ; **Cil'iola**, secondary or diminutive cilium.

**cimici'nus** (*cimex*, a bug), smelling of bugs, as Coriander.

**Cincho'na** (genus), compounds, *see* CHINA, QUININE, etc.; **cinchona'ceous** (+aceous), relating to cinchona plants ; **Cin'chonine**, one of the alkaloids found in the bark of the Cinchona ; **cinchon'ic**, relating to the same genus.

**cin'cinnal**, *cincinna'lis* (Lat., curled), applied to curled inflorescences as **~ Cyme**, a cyme in which the successive flowers are on alternate

sides of the pseudaxis ; ~ **Dichot'omy**, in which alternate branches develop ; **Cincin'nus** (Lat., a curl), applied to a uniparous scorpioid cyme ; the erroneous form CICINNUS is found in some writers.

**cinc'tus** (Lat., girded), used of albumen when surrounded by an annular embryo.

**Cinench'yma** (*κινέω*, I move ; *ἔγχυμα*, an infusion), laticiferous tissue ; **cinenchym'atous**, possessing latex vessels.

**cinera'ceous**, *-eus* (Lat.), somewhat ashy in tint.

**cineras'cens** (*cinis, cineris*, ashes), turning ashy grey ; **ciner'eous**, *-eus* (Lat., ashy), the grey of wood ashes ; **cineric'ius**, **cinerit'ious**, *-ius* = CINEREOUS.

**Cing'ulum** (Lat., a girdle), (1) the neck of a plant, that which is between stem and root, the collum ; (2) the connecting zone, girdle, or hoop of Diatom-frustules.

**Cin'nabar** (*κιννάβαρι*, a red pigment), (1) Dragon's blood, a resinous gum from *Daemonorops Draco*, Blume, and other plants ; (2) also the colour obtained from it, vermilion ; **cinnabari'nus**, scarlet.

**cin'namic**, or **cinnamo'mic**, pertaining to cinnamon ; **cinnamo'meus** (Lat.), cinnamon colour, a light yellowish brown.

**Ci'on**, an old form of SCION.

**Cionosper'meae** (*κίων*, a column, *σπέρμα*, a seed), plants whose ovules develop on a central, more or less columnar placenta, as Olacineae and Santalaceae.

**circa**, in Latin compounds = round about.

**cir'cinal**, *circina'lis* (*circino*, I make round), involute from the tip into a coil ; **cir'cinnate**, *circinna'tus*, coiled into a ring or partially so ; sometimes spelled **cir'cinate**.

**circula'tion** (*circulatio*, a revolution), the streaming motion of protoplasm in cells ; *cf.* ROTATION.

**circumax'ile**, *circumaxi'lis* (*circum*, round ; *axis*, an axle), surrounding a central axis which separates when the fruit splits open ; **circumcinc'tus** (Lat), girded round ; **Circumciss'ion** (*circumcisus*, cut around), (1) Blair's term for ringing fruit trees ; (2) cut round as the apothecia of some Lichens ; **circumferen'tial** (Lat., *circumferentia*), relating to the circumference ; **Circumlat'eralism** (*latus, lateris*, a side), the tendency in plant phylogeny to develop a circular arrangement of parts (L. H. Bailey) ; **circumnu'tate** (*nuto*, I nod), the movements of the growing points of plants round the axis ; **Circumnuta'tion**, the phenomenon of the apical portions of stem, tendril, root, turning to various quarters of the compass ; **Circumposit'io** (*positus*, placed), a layer, or branch laid into the earth to root, whilst still connected with the parent stock ; **circumsciss'ile**, *circumscissi'lis*, *circumsciss'us* (*scindo, scissus*, to split), dehiscing as if cut circularly around, as in the capsule of *Anagallis* ; **Circumscrip'tion** (*scribo, scriptum*, to write), (1) the outline of any organ ; (2) the definition of a form or group of forms, as of species, genera, orders ; **circumse'piens** (*sepes*, a hedge), surrounding, as a protection ; *circumsepien'tia fo'lia*, is used by de Candolle for leaves which surround the stem, as if to protect the young growth ; **circummedull'ary** (*medulla*, the spinal marrow), a proposed emendation of "perimedullary."

**cir'rhate**, *cirra'tus*, *cirrha'tus*, *cirrha'lis* (*cirrhus*, a tendril), tendrilled, or assuming the functions of a tendril ; **cirrhif'erous** (*fero*, I bear), producing tendrils ; **cirrh'iform**, *cirrhiform'is* (*forma*, shape), apparently a tendril ; **Cirrho'sitas**, the state of possessing tendrils ; **cirrh'ose**, **cirrh'ous**, *cirrho'sus*, (1) tendrilled, (2) with a wavy hair-point (Braithwaite) ; **Cirrh'us**, since Linnaeus, used for a tendril, a filiform organ of attachment, modified from a leaf, stipule, or

aborted branch. — The foregoing are frequently spelled **cirrife'rous**, **cirr'iform**, **cirr'ose**, **Cirr'us**, etc. (from *cirrus*, a curl).

**Cistell'a**, **Cist'ula** (Lat., a little chest), used for the apothecia of Lichens, which, globular at first, burst at maturity.

**Cist'olith** = CYSTOLITH.

**Cist'ome**, *Cisto'ma* (κίστη, a box; στόμα, a mouth), a membranous sac which was supposed to pass beneath the stomatic guard-cells; but the cells at the bottom of the stomatic cavity are destitute of cuticle.

**Cistoph'orum** (φορέω, I carry), "the stipe of certain Fungals" (Lindley).

**Citrell'us** (from *Citrus*, Linn.), somewhat yellow; **cit'reus**, lemon-yellow; **citrinell'us**, yellowish; **cit'ric Acid** is abundant in lemon juice.

**cladautoi'cous** (κλάδος, a branch; αὐτός, self; οἶκος, a house), having the male inflorescence of a Moss on a proper branch; **Cladench'yma** ‡ (ἔγχυμα, an infusion), branched parenchyma; **cladocarp'ous** (καρπός, fruit), having a fruit terminating a lateral shoot in Mosses; **Clad'ode**, a branch of a single internode simulating a leaf; **Clado'dium**, a flat expansion of the stem; **Cladodystro'phia** (δυς, bad; τροφή, nourishment), the perishing of branches; **Clad'ophyll**, *Cladophyll'a* (φύλλον, a leaf), a branch assuming the form and function of a leaf, a cladode; **Cladopto'sis** (πτῶσις, a fall), abnormal casting off of branches; **Cladoscle'reids** (σκληρός, hard; εἶδος, resemblance), stellate bodies containing calcium oxalate in leaves and floral envelopes of *Euryale ferox*, Salisb.; **cladosiphon'ic** (σίφων, a tube) having a tubular stele interrupted at the insertion of branches (Jeffrey); **Cladostro'ma** ‡ (στρῶμα, something spread), a receptacle or growing-point covered with carpels, each of which has a free placenta.

**Clamp-cells**, small semicircular hollow protuberances, laterally attached to the walls of two adjoining hypha-cells, and stretching over the septum between them; ~ **Connec'tions**, the same.

**Clap'per**, the water-sac, or lobule of Hepaticae.

**Clasileu'cite** (κλάσις, a fracture + Leucite), that part of the protoplasm differentiated in nuclear division to form the spindle and centrosomes or spheres when present (Dangeard).

**Clasp'ers**, Grew's term for tendrils.

**Class**, *Clas'sis* (Lat. a fleet), a primary group of Orders, Dicotyledons for example; **Classifica'tion**, arrangement under respective groups; taxonomy, from Class to Variety, or Form.

**clath'rate**, *clathra'tus* (Lat. latticed), latticed, or pierced with apertures; ~ **Cell** = Sieve-tube; **Cath'rus** (Lat. a lattice), a membrane pierced with holes and forming a sort of grating.

**Claus'ilus** (*clausus*, shut), Richard's term for his macropodal embryo, when its radicle is united by its edges, and entirely encloses the rest (Lindley).

**cla'vate**, *clava'tus* (*clavus*, a club), club-shaped, thickened towards the apex; **clav'ellate**, *clavella'tus*, diminutive of the foregoing; **Clav'icle**, *Clavic'ula* (Lat. vine-tendril), tendril, cirrhus; **clavic'ulate**, *clavicula'tus*, furnished with tendrils or hooks.

**clav'iform**, *claviform'is* (*clava*, a club; *forma*, shape), club-shaped; **clavillo'sus** (Lat.), clubbed, or markedly club-shaped; **Clav'ule**, *Clav'ula*, the club-shaped sporophore in certain Fungi, as *Clavaria*; **Cla'vus**, the disease of Ergot in grasses, the young grain being malformed and club-shaped, from the attack of *Claviceps purpurea*, Tul.

**Claw**, the narrowed base of the petals in such plants as *Dianthus*.

**Cleft**, cut half-way down; ~ **-graft'ing**, insertion of a scion in a cleft made in the stock.

**Cleis'tocarp** (κλειστός, shut; καρπός, fruit), an ascocarp, which is completely closed, the spores escaping

by rupture, a cleistothecium ; **cleistocarp'ous**, applied to those Mosses whose capsules do not open by a lid ; **cleistogam'ic, cleistog'amous** (*γάμος*, marriage), with close fertilization, it taking place within the unopened flowers ; **Cleistog'amy**, the condition described ; **Cleis'togene** (*γένος*, offspring), a plant which bears cleistogamous flowers (Crozier) ; **Cleistog'eny**, bearing cleistogamic flowers ; adj. **cleistog'enous** ; **Pseudo~** ; Hansgirg's term for an intermediate condition, the flowers being normal, but not opening, and pollination taking place within the closed perianth ; **Cleistothe'cium** (*θήκη*, a case), an ascocarp which remains closed till decay or rupture sets free the ascospores, a cleistocarp ; **Clest'ines**, large parenchymatous cells in which raphides are frequently deposited.

**Climacorhi'zae** (*κλῖμαξ*, a ladder, *ῥίζα*, a root), Van Tieghem's term for Gymnosperms and all Dicotyledons except the Nymphaeaceae, their root-hairs having an epidermal origin.

**Cli'mbing**, ascending by using other objects as supports.

**Clinand'rium** (*κλίνη*, a bed ; *ἀνήρ, ἀνδρός*, a man), the anther-bed in Orchids, that part of the column in which the anther is concealed ; **Clinanth'ium** (*ἄνθος*, a flower), the receptacle in Compositae ; **Clinid'ium**, the stalk supporting a stylospore ; **Clinosporang'ium** (*σπορά*, a seed ; *ἀγγεῖον*, a vessel), a synonym of PYCNIDIUM ; **Cli'nospore** = STYLOSPORE ; **Cli'nium**, (1) the receptacle of a Composite flower ; (2) the sporophore of some Fungi ; **Cli'nostat** = KLINOSTAT.

**clock'wise** = dextrorse.

**Clona'rium** ‡ (*κλών*, a little branch), the ripe, spiral-coated nucule of *Chara*.

**Close Fertiliza'tion**, fecundation by its own pollen.

**closed**, used of those fibro-vascular bundles in which all the pro-cambium cells become permanent tissue ; **~ Bundles**, as described, so that increase is prevented ; **~ Fertiliza'tion** = CLOSE FERTILIZATION ; **~ Flow'ers**, are cleistogamic Flowers ; **~ Nu'cleus**, that of the higher plants.

**Clo'sing Mem'brane**, the original unthickened cell-wall at the centre of a pit.

**Clo'ster**, *Clo'strum* (*κλωστήρ*, a spindle), elongated cells, pointed at each end, frequent in wood.

**cloud'ed**, when colours are unequally blended.

**Clove**, a gardener's name for a young bulb developed round the mother-bulb, as in garlic.

**Club**, a pluricellular hair, one of the elements of the pulp of the orange or lemon fruit (Crozier) ; **club-shaped**, gradually thickened upward from a slender base, clavate ; **Club-root**, malformation in Crucifers caused by *Plasmodiophora Brassicae*, Woron. ; **Clubb'ing**, is a synonym.

**Clus'ter**, (1) old name for raceme, as used by John Hill ; (2) ‡ = VASCULAR BUNDLE ; **clust'ered**, compactly gathered together, as the flower of *Cuscuta*.

**cly'peate**, *clypea'tus* (*clypeus*, a round shield), buckler or shield-shaped ; **clypeastriform'is** (*forma*, shape), **clypeola'ris**, **cly'peiform**, *clypeiform'is*, all denote shield-shaped.

**coacerv'ate**, *coacerva'tus* (Lat., heaped up), clustered.

**coad'nate**, *coadna'tus* (*coadunatus*, gathered into one) ; (1) an equivalent of ADNATE ; (2) cohering ; (3) connate.

**coaeta'neous** (*coaetaneo*, to be of the same age), existing or appearing at the same time.

**Coales'cence** (*coalesco*, to grow together), the act of growing together ; **~ of Cells**, the absorption or disappearance of partitioning cell-walls, as in the formation of vessels ; **coales'cent**, *coalesc'ens*, union by growth.

**Coalit'io** (*coalitus*, fellowship), the growth together of parts, as the

coalescence of petals causes that condition ; adj. **coal'itus.**

**coarc'tate,** *coarcta'tus* (Lat., pressed together), crowded together; **Coarc'ture,** *Coarctu'ra*, Grew's term for the neck or collum, the junction of root and stem at the level of the ground.

**Coat,** the successive layers of a bulb ; **coat'ed,** occurring in layers, usually of varying consistence, as the bark of a tree, the rind of fruits, etc. ; ~ **Bulb,** a tunicated bulb.

**coax'ial** (*co* for *con*, with, and *axis*, an axle), parallel with the axis, or having a common axis.

**Cob,** the spike of maize.

**cobalti'nus** (Mod. Lat.), the colour of cobalt, a light blue, azure.

**cob'webbed, cob'webby,** entangled with fine filaments, arachnoid.

**Cocc'i,** pl. of COCCUS.

**Coccid'ium** † (*κόκκος*, a kernel or berry) = CYSTOCARP ; **coccif'erous** (*fero*, I bear), bearing berries.

**cocciform'is** (*coccum*, kermes, *forma*, shape), used by Koerber to denote Lichen spores shaped like the kermes, or insect which affords the scarlet dye from *Quercus coccifera*, Linn. ; **coccinell'us,** light scarlet in colour ; **coccin'eus,** scarlet, with a tendency towards carmine.

**coccochromat'ic** (*κόκκος*, a berry ; *χρῶμα*, colour), colour distributed in granular patches, as in some diatoms, *cf.* PLACOCHROMATIC ; **Cocco'des,** spherical granulations resembling pills ; **Coc'cogone,** *Coccogo'nium* (*γονή*, offspring), a propagative cell of the nature of a sporangium in Cyanophyceae ; **cocc'oid,** applied to amorphous colonies of propagative cells in *Nostoc* (Sauvageau) ; **Coc'colith** (*λίθος*, stone), constituent plates of COCCOSPHERES ; **Coc'cosphere** (*σφαῖρα*, a sphere), spherical masses of protoplasmic origin, bearing coccoliths on their external surface, *Coccosphaera leptopora*, G. Murr. & Blackm. ; **Coc'cule,** *Coc'culum*, a portion of a divided COCCUS ; **Coc'cus,** *Coc'cum*, (1) part of a schizocarp or lobed fruit ; (2) Coccus is also applied to the rounded bacteria.

**Coch'lea** (*cochlea*, a snail or spoon), a closely coiled legume ; **coch'lear,** *cochlea'ris* ; (1) spoon-shaped ; (2) used of a form of imbricate aestivation with one piece exterior **cochlear'iform,** *cochlæriform'is*, spoon-shaped ; **Cochlidiosperm'ata** ‡ (*σπέρμα*, seed), seeds convex on one side, concave on the other, from unequal growth or anomalous structure ; **coch'leate,** *cochlea'tus*, shell-shape, in the manner of a snail-shell.

**Cod,** = a seed pod ; **cod'like,** follicular ; **Cod'ware,** an old word for pulse.

**Code'ine** (*κώδεια*, a poppy-head), an alkaloid in the opium poppy.

**cocks'combed,** fasciated (Crozier).

**codiophyll'us** (*κώδιον*, a fleece ; *φύλλον*, a leaf), when a leaf is covered with a woolly pubescence.

**Coelosperm'ae** (*κοῖλος*, hollow ; *σπέρμα*, a seed), plants whose seeds have albumen curved at the ends ; **coelosperm'ous,** *coelosperm'us*, hollow-seeded ; used for the seed-like carpels of Umbelliferae, with ventral face incurved at the top and bottom, as in coriander ; **Coenanth'ium** (*ἄνθος*, a flower) = CLINANTHIUM.

**Coe'nobe** = COENOBIUM.

**Coeno'bium** (*κοινόβιον*, a cloister) ; (1) the same as CARCERULE ; (2) a colony of independent organisms united by a common investment, as *Volvox*, *Pandorina*, etc. ; (3) fruits such as those of Labiates, consisting of distinct lobes but not terminated with a stigma ; sometimes spelled CENOBIUM, etc. ; adj. **coeno'biar,** *coenobia'ris*, *coenobio'neus* ; **coeno'bioid** (*εἶδος*, resemblance), like a coenobium.

**Coenoclad'ia** (*κοινός*, in common ; *κλάδος*, a branch), natural grafting, where branches have grown together ; **Coen'ocyte** (*κύτος*, a vessel), an aggregation of protoplasmic

units (energids) enclosed in a common wall, as in *Vaucheria*; **coenop'odus**, = COINOPODUS.

**coerules'cens**, *coeru'leus*, = CAERULESCENS, CAERULEUS.

**coesius** = CAESIUS.

**coëta'neous**, of the same age, existing at the same time; also spelled COAETANEOUS.

**Coeto'nium** (*κοιτών*, a bed-chamber), the outer glumes of a multifloral spikelet in grasses (Trinius).

**coffea'tus** (Mod. Lat.), the colour of roasted coffee-berries, *Coffea arabica*, Linn.

**cohe'rent**, *cohe'rens*, **cohe'ring** (*cohaereo*, I cleave to); (1) the act of **Cohe'sion**, the incorporation of one part with another, as the petals to form a tubular corolla; (2) adherent.

**Co'hort**, *Co'hors* (Lat., a band of soldiers), a group of orders, forming an Alliance.

**coinop'odus** ‡ (*κοινόπους*, with common foot), terminating downwards in a cone, as most embryos; Lindley also spells it **coenop'odus**.

**Colch'icine**, an alkaloid yielded by *Colchicum autumnale*, Linn.

**Colench'yma** = COLLENCHYMA.

**Col'eogen** (*κολεός*, a sheath; *γεννάω*, I bring forth), a ring-shaped group of cells, surrounding the mestome of *Dicksonia*, etc. (Haberlandt); **Coleophyll'um** (*φύλλον*, a leaf), the first leaf in germination of monocotyledons, which sheathes the succeeding leaves; **Coleop'tilum** (*πτίλον*, a feather) = Coleophyllum; **Coleorhi'za** (*ῥίζα*, a root), the sheath of a monocotyledonous embryo, when pierced by the true radicle; adj. **coleorhiza'tus**; **Col'esule**, *Coles'ula*; (1) a membranous bag-like organ enclosing the sporangium of Hepaticae, the perichaetial sheath, usually termed the Vaginule.

**Collap'sion**, *Collap'sio* (Lat., falling together), the act of closing or falling together.

**Coll'ar**, *Coll'um* (Lat., neck); (1) the "neck" of a plant, the imaginary boundary between the above- and underground portion of the axis; (2) the annulus in Agarics.

**Colla're** ‡ (Lat., a collar) = LIGULE.

**collat'eral** (*col-latero*, to admit on both sides), standing side by side; ~ **Bun'dles**, those having a single strand of bast and wood, side by side, and usually in the same radius; BICOLLATERAL BUNDLES are a variation on this type, having two of one element to one of the other; ~ **Chor'isis**, *see* CHORISIS.

**collect'ing** (*collect'io*, a gathering together) **Cells**, are roundish cells, destitute of chlorophyll and densely filled with protoplasm; in German "Sammenzellen"; ~ **Hairs**, hairs on the styles of some Compositae serving to collect the pollen on its discharge from the anthers; **collect'ive Fruits**, the aggregation of the fruits of several flowers into one mass, such as the mulberry; **Collect'ors**, *Collector'es*, the hairs of certain styles, as in *Campanula*, which collect or brush out the pollen from the anthers; *Cf.* COLLECTING HAIRS.

**Collench'yma** (*κόλλα*, glue; *ἔγχυμα*, an infusion); (1) parenchymatous cells with cellulose walls usually elongated, forming strands of great strength under the epidermis, thickening in angles, etc.; (2) the cellular matter in which the pollen is formed, usually absorbed, but remaining and assuming a definite form in some plants as in Orchids, or delicate threads, as in *Oenothera* (Lindley); **Bast** ~, thickening chiefly involving the whole wall; **Cart'ilage** ~, walls thickened all round with sharply differentiated inner lamella; **Meta-** ~ caused by slow death of cell, and metamorphosis of the cell-wall; **Plate** ~, a form which resembles the true hard bast; **Rift** ~, portion of wall bordering on an intercellular space alone thickened.

**Coll'et** = COLLAR.

**Colle'ter** (*κολλητός*, glued), mucilaginous hairs on the buds of

many phanerogams which secrete gum.

**collic'ulose**, *colliculo'sus* (*colliculus*, a little hill), covered with little round elevations or hillocks.

**collif'erous** (*collum*, a collar), bearing a collar, as the stipe of an Agaric; **Colliform'e** (*forma*, shape), an ostiole, the orifice being lengthened into a neck.

**colliga'tus** (Lat., fastened together), collected (S. F. Gray).

**colli'nus** (Lat., appertaining to a hill), growing on low hills.

**Col'lum** (Lat. neck); (1) the collar or neck of a plant, see COLLAR; (2) the lengthened orifice of the ostiole of Lichens.

**Col'loids** (κόλλα, glue; εἶδος resemblance), substances of a gelatinous character; opposed to crystalloid; adj. **colloidal.**

**colo'nial** (*colonia*, a band of settlers), in cell-division, every cell dependent on the other cells of the organism at large (Hartog); **Col'onist**, H. C. Watson's term for weeds of the cultivated land and about houses, seldom found elsewhere; **Col'ony**, see COENOBIUM.

**colorif'ic** (*color*, colour, *facio*, I make), applied to those Lichens which yield a dye.

**Col'our, col'oured**, possessing any tint but green, technically white is regarded as a colour, green is not; **col'ourless**, pale, and hyaline; in Lichens, not brown.

**Colpench'yma** (κόλπος, bosom; ἔγχυμα, an infusion), cellular tissue with sinuous cell-walls.

**Colum** ‡ (Lat. a strainer) = PLACENTA.

**columbi'nus** (Lat.), dove-coloured; sometimes used for the tint of a blue pigeon.

**Col'umel** (*columella*, a small pillar), Jaccard's term for lignified tissue formed in place of the fertilized archegonium, it bears at its extremity the privileged embryo, the only one which develops, as in *Ephedra helvetica*, C. A. Mey.; **Columel'la**; (1) a persistent central axis round which the carpels of some fruits are arranged as in *Geranium;* (2) the axis of the capsule in Mosses; (3) the receptacle bearing the sporangia of *Trichomanes*, and other Ferns; (4) the central portion of the anther in Solanaceae (Halsted); (5) a sterile axial body within the sporangium of Fungi; **columel'liform** (*forma*, shape), shaped like a small pillar or column.

**Col'umn**, *Colum'na* (Lat. a pillar), the combination of stamens and styles into a solid central body, as in Orchids; **colum'nar**, *columna'ris*, having the form of a column, as the stamens of *Malva*.

**com**, in Latin composition, a modification of *con*, with.

**Co'ma** (Lat. the hair); (1) the hairs at the end of some seeds; (2) the tuft at the summit of the inflorescence, as in the pineapple; (3) the entire head of a tree; **co'mal Tuft**, a tuft of leaves at the tip of a branch; **co'mate**, *coma'tus*, tufted.

**combina'te-veno'sus** ‡ (Lat.), joined veins, when in a leaf the lateral veins unite before reaching the margin.

**comb-shaped**, pectinate.

**combi'ned Hy'brids**, hybrids having the strain of more than two species, as one arising from a simple hybrid + another hybrid or species.

**Com'bus**, used by S. F. Gray for CORMUS, for which it is probably a misprint.

**Com'ites** (pl. of *comes*, a companion), Hegelmaier's term for certain cells occurring in the embryo-sac of *Lupinus*.

**commen'sal** (*com* = *con*, with; *mensa*, a table), used of two organisms living in mutual beneficent relations, as in the dual-lichen theory, where the Fungus stimulates the host-Algae to greater energy of function; **Commen'salism**, the state in question.

**Com'missure**, *Commissu'ra* (Lat., a joint or seam), the face by which

two carpels adhere, as in Umbelliferae.

**com'mon**, (Lat. *commu'nis*), general or principal, as opposed to partial; ~ **Bud**, containing both leaves and flowers, or more than one flower; ~ **Bun'dles**, those which are common both to stem and leaf, being continuous from one to the other; ~ **Ca'lyx** ‡ = Involucre; ~ **Involu'cre**, that belonging to the main inflorescence, as of the general umbel; ~ **Name**, one in popular use for a plant, exclusive of the scientific name; ~ **Ped'uncle**, the main stalk, when it supports several subordinate ones, or pedicels; ~ **Per'ianth**, occasionally used by the involucre as in Compositae; ~ **Pet'iole**, the first and principal leaf-stalk in compound leaves, the secondary petioles being termed "partial"; ~ **Recept'acle**, that which supports more than one organ; ~ **Um'bel**, = COMPOUND UMBEL.

**commu'nis** (Lat.), growing in society; not common, which is rendered by *vulgaris*.

**co'mose**, *como'sus* (Lat. with much hair) tufted, comate.

**compact'**, *compact'us* (Lat.), closely joined or pressed together.

**Compan'ion-Cells**, in Phanerogams, cells which are associated with sieve-tubes and are of common origin, filled with granular proteid contents, and possessing strongly marked nuclei; ~ **Hyphae** (*ὑφή*, a web), the tip of the trichogyne of *Polystigma* passing through a stoma into the air is accompanied by slender mycelial hyphae, which form a tuft, the so-called companion hyphae (De Bary).

**Compa'go**, pl. **Compa'gines** (Lat. a connection), used by Wallroth in speaking of the Lichen-thallus when more or less brittle or readily parting into layers; **compagina'tus** (Lat.) packed closely one over another.

**Com'pass-plants**, those which place their leaves so that their surfaces face east and west, the edges north and south, such as *Silphium laciniatum*, Linn.

**comp'ital** (*compita'lis*, pertaining to cross roads) in venation when the veinlets angularly intersect; also when the sori are on the point of junction.

**com'planate**, *complana'tus* (Lat. levelled), flattened, compressed.

**complete'**, *comple'tus* (Lat. filled), having all the parts belonging to it or the type.

**Com'plex**, (Lat.), interwoven fibres, or group of complicated parts (Crozier). **complex'us** (Lat. embraced), in vernation when a leaf is folded over another at the sides and apex; ~ **cellulo'sus** (Lat.), = cellular tissue; ~ **membrana'ceus**, (Lat.), elementary membrane, ground-tissue; ~ **tubula'ris**, (Lat.), woody tissue, xylem; ~ **utricula'ris** (Lat.), angular cellular tissue; ~ **vascula'ris** (Lat.), spiral vessels, sometimes used for small vessels showing secondary deposits; **complexi'vus** = COMPLEXUS.

**com'plicate**, *complica'tus* (*complico*, I fold together), folded upon itself.

**Composit'ion**, *composit'io* (Lat., putting together), the combination of parts to form the whole, as of subordinate parts to form an organ, or elements to form a substance.

**com'pound**, similar parts aggregated into a common whole; ~ **Cor'ymb**, one having more than one flower to each branch; ~ **Dicha'sium**, that in which the primary axis divides into secondary dichasia; ~ **Flow'er**, an accumulation of florets as in the Compositae, ANTHODIUM; ~ **Fruit**, where many distinct carpels are associated, as in the mulberry; ~ **Fungus-body**, growth form in which the thallus is constituted by the coherence of separate hyphal ramifications; ~ **Hairs**, branched or ramified hairs; ~ **Inflores'cence**, where an inflorescence is itself composed of secondary ones; ~ **Leaf**, one divided into separate blades; ~

**O'vary**, an ovary having more than one carpel; ~ **Pistil**, two or more carpels coalescent into one body; ~ **Raceme'**, = PANICLE; ~ **Spike**, occurring frequently on grasses, when the inflorescence is made up of spikes; ~ **Spore**, = SPORIDESM; ~ **Spor'ophore**, formed by cohesion of the ramifications of separate hyphal branches, Ger. Fruchtkörper; ~ **Stem**, one that is branched; ~ **Um'bel**, an association of simple umbels, each ray being itself an umbel.

**compress'ed**, *compress'us* (Lat. pressed together), flattened, complanate; **compressis'simus** (Lat.) excessively flattened.

**con** (Lat. with), modified by euphony frequently into **com**—both meaning "with" in Latin compounds.

**concat'enate**, *concatena'tus* (Lat. linked together), joined as links in a chain, as strings of spores, or frustules of Diatoms.

**Concaulesc'ence** (*con*, with; *caulis*, stem), the coalescence of axes.

**con'cave**, *conca'vus* (Lat. hollowed out), hollow, as the inside of a saucer.

**con'centrate** (*con*, with; *centrum*, centre), to bring to a common centre; **concen'tric**, having a common centre; ~ **Bun'dles**, where one element is wholly surrounded by the others, as the xylem by the phloëm; ~ **Vasc'ular-bun'dle** is the same.

**Concep'tacle**, *Concepta'culum* (Lat. a receptacle), (1) originally used by Linnaeus to express FOLLICLE; (2) afterwards for the fruit of Asclepiads and Apocyneae; (3) a hollow case covering the sexual organs in some Algae; (4) the peridium of Fungi; (5) the capsule of Mosses; (6) by Medicus, following Jung, used for pericarp; (7) now a general expression for a superficial cavity opening outwards, within which reproductive cells are produced.

**conch'iform**, *conchiform'is* (*concha*, a shell; *forma*, shape), shaped like the shell of a bivalve.

**concin'nus** (Lat.), neat, elegant.

**concolor'ous**, *con'color* (Lat., of one colour), uniform in tint.

**concom'itant** (*concom'itans*, attending), used of vascular bundles which run side by side without being separated by other bundles.

**Concresc'ence** (*concresco*, to grow together); (1) becoming concrete; (2) a synonym of CEMENTATION; **concrete'**, *concre'tus*, growing together.

**Conduct'ing Bun'dles**, strands of elongated cells in leaves and even the stems of Mosses, simulating a vascular bundle; also used for Vascular Bundles; ~ **Cells**, long narrow cells, associated with sieve-tubes, but having imperforate walls; ~ **Sheath**, elongated parenchymatous cells in the inner cortex of the stem, continued into the leaves as an investiture of the vascular bundle; ~ **Tissue**, a loose tissue of the style through which the pollen-tubes can readily make their way; **Conduct'ive-Tissue** is the same.

**condu'plicans** (Lat., doubling), doubling up as, **conduplicant'ia Fo'lia**, the leaflets of a compound leaf which apply themselves to each other's surfaces; **condu'plicate**, *conduplicati'vus*, folded together lengthwise; **Conduplica'tion**, in æstivation when the sides of an organ are applied to each other by their faces.

**Condyl'ium** ‡ (*κόνδυλος*, a knuckle), the antheridium of *Chara*.

**Cone**, *Co'nus* (Lat.), the fruit of the pine or fir tree with scales forming a STROBILE; ~ **of Growth**, the apical growing portion of the stem.

**Conench'yma** (*κώνος*, a cone; *ἔγχυμα*, an infusion), conical cells which constitute hairs (Lindley).

**confert'ed**, *confert'us* (Lat. brought together), closely packed or crowded.

**conferru'minate**, *conferrumina'tus* (Lat., cemented), adherent by adjacent faces, as the cotyledons of Horse Chestnut.

**confer'void**, composed of threads, resembling the genus *Conferva*.

**con'fluent**, *con'fluens* (Lat., flowing into), blended into one, passing by degrees one into the other; ~ **Fruit**, a compound fruit, such as the mulberry or pineapple.

**conformed'**, *conform'is* (Lat., shaped); (1) similar in form; (2) closely fitting, as a seed-coat to the nucellus.

**Con'gener** (Lat. of the same race), another plant of the same genus; **congener'ic**, belonging to the same genus.

**congen'ital** (*congenitus*, born together), grown to anything; strictly, of the same origin.

**Conge'ries** (Lat., a heap), a collection of parts or organs.

**congest'ed**, *congest'us* (Lat., brought together), crowded.

**conglo'bate**, *congloba'tus* (Lat., made like a ball), collected into a ball.

**conglom'erate**, *conglomera'tus* (Lat., rolled together), clustered.

**Conglu'tin** (*conglutinatus*, cemented together), a constituent of plant-casein, usually with legumin; **conglu'tinate**, *conglutina'tus*, as though glued together.

**con'gregate** (*congrego*, to assemble), collected into close proximity.

**Co'nia** (*κώνειον*, hemlock), the active principle of *Conium maculatum*, Linn., a poisonous alkaloid.

**con'ical**, *con'icus* (Lat., cone-shaped), having the figure of a cone, as the carrot.

**conidiif'erous** (*κόνις*, dust; *φορέω*, I carry), bearing CONIDIA; **Conid'iophore** = GONIDIOPHORE; **Conid'iospore** (*σπορά*, a seed) = CONIDIUM; **Con'ids**, simplification proposed by Bennett and Murray for CONIDIA; **Conid'ium** (pl. **Conidia**) = GONIDIA.

**Conif'erin** (*conus*, a cone; *fero*, I bear), a glucoside derived from coniferous wood; **conif'erous**, producing or bearing cones, as many Gymnosperms; **co'niform** (*forma*, shape) = CONICAL.

**Co'niin**, **Co'nein**, the same as CONIA.

**Con'iocyst'**, **Coniocyst'a** (*κόνις*, dust; *κύστις*, a bag), a closed sporangium resembling a tubercule, containing a mass of spores; **Coniothe'ca** ‡ (*θήκη*, case), the loculus of an anther.

**Conjoint Bun'dle**, a vascular bundle when it is composed of wood and bast elements

**con'jugate**, *conjuga'tus* (Lat., united), coupled; as a pinnate leaf, of two leaflets: ~ **Spi'rals**, whorled leaves so arranged as to give two or more genetic spirals running parallel with each other; **Conjuga'ting Tubes**, long processes emitted by the fertilized trichophore in certain Algae, which unite with the auxiliary cells (Osterhout); **Conjuga'tion**, the fusion of sexual elements, the union of two gametes to form a zygote, used especially when the two gametes are similar, as in some Algae and Fungi: ~ **-Cell** = GAMETE; **conjuga'to-palm'ate**, when a leaf divides into two arms, each of which is palmate.

**conjunc'tive** (*conjunctivus*, joined), serving to unite; ~ **Threads**, = SPINDLE Fibres; ~ **Tis'sue**, the fundamental tissue or ground tissue interior to the stele; **Conjunctor'ium** ‡ the operculum of a Moss.

**connas'cent**, (*con*, with; *nascor*, to be born), produced at the same time (Crozier).

**con'nate**, *conna'tus* (Lat., born at the same time), united, congenitally or subsequently; **con'nate-perfo'liate**, united at the base in pairs around the supporting axis.

**Connect'ing Cell**, (*connectus*, fastened together) = HETEROCYST; ~ **Zone**, the "hoop" or girdle connecting the valves of a Diatom frustule; **Connect'ive**, *Connecti'vum*, the portion of a stamen distinct from the filament which connects the two lobes of an anther; **connectiva'lis**, having to do with the connective.

**conni'vent**, *conni'vens* (Lat., winking), coming into contact or converging.

**Connu'bium**, (Lat., wedlock), the stage of protoplasmic coalescence in the conjugation of filamentous Algae.

**Conocarp'ium** (*κώνος*, a cone; *καρπὸς*

fruit), an aggregate fruit consisting of many fruits on a conical receptacle, as the strawberry; **co'noid** (*εἶδος*, resemblance), cone-like; **conoi'dal**, *conoida'lis*, resembling a conical figure, but not truly one, as the calyx of *Silene conoidea*, Linn.; **Conopo'dium** (*πούς*, *ποδός*, a foot), a conical floral receptacle; **Conostro'ma** ‡ (*στρῶμα*, spread out), Endlicher's term for a growing point, constituting a free central placenta.

**Conserv'ative Or'gans** (*conservatio*, a keeping), those which are employed in nutrition, as root, stem, leaves.

**consim'ilar** (*consimilis*, entirely alike), applied to the valves of a Diatom, when both sides are alike; **Consimil'itude**, resemblance of the two valves, unequal but similar, of the EPITHECA and HYPOTHECA.

**consol'idated** (*consolido*, I make firm); (1) when unlike parts are coherent; (2) Crozier adds, having a small surface in proportion to bulk as many Cacti.

**Con'sortism** (*consors*, sharing property), Reinke's term for SYMBIOSIS.

**con'stant** (*constans*, steadfast), in the same condition, or always present.

**constrict'ed** (*constrictus*, compressed), drawn together, contracted.

**Constric'tion** (*constrictio*, binding together), the narrowest portion of Diatoms and Desmids seen from the side.

**Construct'ive Metab'olism**, = ASSIMILATION.

**consu'tus**, (Lat., stitched together), when parts are united by a membrane of threads.

**Contabesc'ence** (*contabesco*, to waste away), the abortive condition of stamens and pollen.

**conta'gious** (*contagio*, touch), used of diseases when communicable by touch; *cf.*, INFECTIOUS.

**contemato'sus** ‡ (deriv. ?) covered by an armature between bristly and aculeate (Lindley).

**conter'minous** (*conterminus*, neighbouring) of equal boundaries.

**contex'tus** (Lat., wrought together) = TISSUE.

**contig'uous**, *contig'uus* (Lat., adjoining), when neighbouring parts are in contact, as most cotyledons.

**contin'gent** (*contingens*, touching) **Symbio'sis**, see SYMBIOSIS; in Ger. Raumparasitismus.

**contin'uous** (*continuus*, running on), the reverse of interrupted; **Continu'ity**, uninterrupted connection.

**contort'ed**, *contor'tus* (Lat.), twisted or bent; in aestivation the same as CONVOLUTE; **Contor'tion**, a twisting; **contortu'plicate**, (*plicatus*, woven) (1) twisted and plaited or folded; (2) twisted back upon itself.

**contra-**, in Latin compounds = against.

**contract'ed**, *contract'us* (Lat.) narrowed or shortened; spreading but slightly; **contract'ile**, capable of actively shrinking in volume and expanding again, used of protoplasm; ~ **Vac'uoles**, small cavities in protoplasm, which increase and decrease in size rhythmically; **Contractil'ity**, the capacity of altering spontaneously in volume.

**con'trary**, *contra'rius* (Lat.), in an opposite direction, as a silicle compressed contrary to the dissepiment.

**Control'**, frequently used in the sense of the English word Check, as ~ Experiments, to check the original observation.

**Co'nus** (Lat.) = CONE, STROBILE.

**converg'ent** (*con*, with; *vergens*, bending), applied to veins which run from the base to the apex of the leaf in a curved manner; **converg'iner'vis**, **-vius**, **convergen'ti-nervo'sus** (Lat.), simple veins diverging from the midrib and converging towards the margin.

**con'vex**, *convex'us* (Lat. arched), having a more or less rounded surface; **convexiusc'ulus**, somewhat convex.

**con'volute**, *convolu'tus* (Lat. rolled round), **convolu'tive**, *convoluti'vus*: (1) when one part is wholly rolled up in another, as the petals of the Wallflower; (2) in a spathe when

the margins mutually envelope each other.

**cop'pery**, brownish red, with a metallic lustre ; cupreous.

**cop'picing**, in forestry, cropping the plantation by cutting the underwood every few years.

**Cop'rophyte** (*κόπρος*, ordure ; *φυτόν*, plant) = SAPROPHYTE.

**Copula'tion** (*copulatio*, coupling), used for CONJUGATION, the union of sexual cells.

**Cop'ulae** (pl. of *copula*, a thong or band), intermediate bands of cell-wall in Diatoms, as in *Terpsinoë*, etc. ; **cop'ulative** ‡, dissepiments not readily separating from the axis or walls of the pericarp.

**Coque** (Fr. shell), used by S. F. Gray for COCCUS.

**Cor se'minis** ‡ (Lat.) = Embryo.

**corac'inus** (Lat., raven-black), glossy black.

**cor'acoid** (*κόραξ*, a raven ; *εἶδος*, resemblance) "shaped like a crow's beak" (Crozier).

**cor'alline**, *coralli'nus* (Lat. coral red), resembling coral in appearance.

**coralliform'is** (*corallum*, coral, *forma*, shape), coral-like in form ; **cor'alloid**, *coralloi'des* (*εἶδος*, resemblance), coral-like, as the roots of *Neottia Nidus-avis*, Rich.

**Cor'cle** (Crozier) ; **Cor'cule**, *Cor'culum* (Lat. a little heart) = (1) embryo ; (2) plumule, or plumule and radicle.

**Cord, umbili'cal** = FUNICULUS.

**cor'date**, *corda'tus* (Lat.), heart-shaped, applied to leaves having the petiole at the broader and notched end ; **cor'diform**, *cordiform'is* (Lat.), shaped like a heart.

**cord'shape** = FUNILIFORM.

**Core**, the seeds and integuments of a pome, such as an apple ; Grew spells it "Coar."

**core'mial** (*κόρημα*, a broom), like the genus *Coremium*, Link ; **core'mioid** (*εἶδος*, resemblance), applied to a fasciated form as of *Penicillium*, etc.

**Cor'eses** (*κόρις*, a bug), "dark red, broad, discoid bodies, found beneath the epicarp of grapes" (Lindley).

**coria'ceous**, *coria'ceus* (*corium*, leather), leathery.

**Cork**, protective tissue replacing the epidermis in older superficial parts of plants ; the outer cells contain air, and are elastic and spongy in texture, but impervious to liquids ; ~ **Cambium** = PHELLOGEN ; ~ **Cortex**, the corky layers of the bark ; ~ **Mer'istem**, = PHELLOGEN ; **Pore-cork**, suberised portion of lenticels, with intercellular spaces between the cork-cells (Klebahn) ; **cork'y**, of the texture or quality of cork ; ~ **Env'elope**, ~ **Lay'er**, the bast layer beneath the epidermis which gives rise to cork.

**Corm**, *Corm'us* (*κορμός*, a trunk), a bulb-like fleshy stem or base of stem, a "solid" bulb ; **Cormog'amae** (*γάμος*, marriage), Ardissone's division for Characeae and Muscineae ; **cormog'enous** (*γένος*, offspring), having a stem or corm ; **Corm'ophyte** (*φυτόν*, plant), Endlicher's term for plants possessing axis and foliage, that is, Phanerogams and vascular Cryptogams.

**cor'neous**, *cor'neus* (Lat.), horny, with a horny texture.

**Cor'net** (*cornu*, a horn), a hollow horn-like growth ; ~ **shape**, cuculliform, hooded ; **cornic'ulate**, *cornicula'tus* (Lat.), furnished with a little horn or horns ; **corniculif'erous**, *-rus* (*fero*, I bear), bearing horns or protuberances ; **cor'niform** (*forma*, shape), shaped like a horn.

**Cor'nine**, a bitter principle in the bark of *Cornus sanguinea*, Linn.

**Cor'nu** (Lat. a horn), (1) a horn-like process ; (2) occasionally used for Calcar or Spur ; **cor'nute**, *cornu'tus*, horned or spurred ; ~ **Leaves**, a sudden projection of the midrib forming a spine-like outgrowth, often in a different plane ; **Cornu'tin**, a poisonous body derived from ergot, the "spur" of rye and other grasses.

**Corol** (Crozier) = COROLLA.

**Corol'la** (Lat. a little crown) ; (1) the interior perianth, composed of

petals, free or united; (2) ‡ the annulus of Fungi; **corolla'ceous** (+ aceous) corolla-like, petaloid; **cor'ollate**, *corolla'tus*, **corolla'ris**, possessing a corolla; **Cor'ollet**, a floret of a Composite; **corollif'erous**, *-rus* (*fero*, I bear), corolla-bearing; **corolliflor'al** (*flos*, *floris*, a flower), **corolliflor'ous**, *-rus*, having the calyx, petals and ovary inserted separately on the disk, the stamens on the corolla; **cor'olline**, *corolli'nus*, (1) seated on a corolla, (2) corolla-like, petaloid, (3) belonging to a corolla; **Cor'ollule**, *Corollu'la*; (1) a diminutive corolla; (2) floret of a head, as in Compositae.

**Coro'na** (Lat. a crown); (1) a coronet, any body which intervenes between the corolla and stamens; (2) ‡ the "eye" of apples or pears, the remains of the calyx limb; (3) ‡ the ray of the capitula in Compositae; (4) a whorl of ligules or petals, united or free; (5) a synonym of CUCULLUS; (6) used by Hill for the pericycle, or "circle of propagation"; (7) the ring of primary wood in the medullary sheath; ~ **Se'minis** = PAPPUS; ~ **stamin'ea**, = Orbiculus, a coronet formed from the transformation of stamens; **cor'onal**, appertaining to a corona, as ~ **Vessels**, those of the corona; **coro'nans** (Lat.), crowning, seated on the apex; **cor'onate**, *corona'tus* (Lat.), crowned, having a corona: **coro'niform**, *coroniform'is* (*forma*, shape), shaped like a crown or coronet; **Cor'onet** = CORONA; **Coro'nule**, *Coron'ula*; (1) a diminutive of corona, a floret; (2) = PAPPUS; (3) the small calyx-like body which crowns the nucule of *Chara*; (4) in Diatoms, a set of spines which terminate the frustules.

**Cor'pora** (pl. of *corpus*, a body) **carno'sa** (Lat. fleshy), the sporangia of certain Fungi; **Cor'pus**, the mass or substance of anything; ~ **lig'neum**, ~ **ligno'sum**, the mass of the woody tissue of a plant; ~ **medulla're**, the mass of the cellular tissue in the pith.

**Corpus'cle** (*corpusculum*, a small body), a small mass or body; **Corpusc'ula** (sing. **Corpusculum**); (1) sporangia of some Fungi; (2) archegonium, or the central cell of the same in Coniferae; (3) the connections between the arms of the pollen-masses in Asclepiads; ~ **vermiform'ia**, spiral vessels in a contracted, strangled condition.

**cor'rugate**, *corruga'tus*; **corrugati'vus** (Lat.), wrinkled.

**Cor'sican Moss**, dried Algae.

**Cor'tex** (Lat.), (1) the bark or rind; the ground tissue between the stele and epidermis; (2) the peridium of Fungi; **cor'tical**, *cortica'lis*, relating to the cortex; ~ **Lay'er**; ~ **Integ'ument**, the investing layers of the bast system; ~ **Rays**, = medullary rays in the phloëm; ~ **Sheath**, Naegeli's term for the whole of the primary bast bundles; ~ **Stra'tum**, the superficial layer of the Lichen-thallus; **cor'ticate**, *cortica'tus* (Lat.), covered with bark, or with an accessory bark-like covering; **corticif'erous** (*fero*, I bear), producing bark; **cortic'iform** (*forma*, shape), like bark; **cortic'olous** (*colo*, I inhabit), living on bark, as some Lichens and Fungi; **cor'ticose**, **cor'ticous**, barky, full of bark.

**Corti'na** (Late Lat. a curtain), the filamentous annuli of some Agarics; **cor'tinate**, *cortina'rius* (Lat.), having a web-like texture.

**corvi'nus** (Late Lat. pertaining to the raven), raven-black.

**Coryd'alin**, an alkaloid present in the root of *Corydalis tuberosa*, DC.; **coryd'aline**, *corydalin'eus*, resembling the genus *Corydalis*.

**Cor'ymb**, *Corymb'us* (Lat. a cluster of flowers), a flat-topped or merely convex and open flower-cluster of the indeterminate or centripetal order; the term, as now understood, formerly included most cymes; **cor'ymbate**, **corymb'iated**, having corymbs or growing in corymbs; **corymbif'erous**, *-rus* (*fero*, I bear), bearing corymbs; **cor'ymbose**,

*corymbo'sus* ; **corym'bous**, arranged in corymbs ; **corymb'ulose**, **-lous**, in small corymbs.

**Corynid'ia** (*κορύνη*, a club), "Processes sunk into the margin of the germinating leaf of Ferns, and containing spiral threads" (Lindley) [=Antheridia?].

**Coryphyll'y** (*κορυφὴ*, the crown of the head ; *φύλλον*, a leaf), a monstrosity in which the axis ends in a leaf, sometimes coloured.

**Cosmop'olite** (*κόσμος*, the world ; *πόλις*, a city), a plant of well-nigh universal distribution ; **cosmopol'itan**, distributed throughout the world.

**Cos'ta** (Lat.), a rib, when single, a midrib or middle-nerve ; **cos'tal-nerved**, nerves springing from the midrib ; **cos'tate**, *costa'tus* (Lat.), ribbed, having one or more primary longitudinal veins ; **costa'to-veno'sus**, when the parallel side veins of a feather-veined leaf are much stouter than those which intervene ; **cos'taeform** (*forma*, shape), applied by J. Smith for primary veins in ferns when parallel to each other and very evident ; **Cost'ulae**, used by the same author for the primary veins of Fern-segments ; **costel'late**, having small ribs.

**Cot'ton**, the hairs of the Cotton-pod ; **cot'tony**, pubescence of long soft hair.

**Cotyle'don** (*κοτυληδών*, a hollow), applied first by Linnaeus to the seed-lobes, the first leaves of the embryo, one in monocotyledons, two or more in dicotyledons, rarely a whorl borne by the radicle or caudicle ; **cotyledona'ris**, union or close approximation of the seed-lobes ; **Cotyle'donoid** (*εἶδος*, resemblance), a germinating thread of a Moss, a protonema ; **cotyle'donous**, *cotyledo'neus*, possessing seed-lobes.

**cotyl'iform**, *cotyliform'is* (*κότυλη*, a hollow, *forma*, shape), dish-shaped or wheel-shaped, with an erect or ascending border ; **Cot'yloid Cell**, a cell of doubtful function, possibly a sister-cell of the embryo sac.

**Coum'arin**, the fragrant principle of the Tonquin bean, *Dipteryx odorata*, Sw.

**Cou'ple-cell**, Hartog's term for ZYGOTE.

**Cour'baril**, a resin from *Hymenaea Courbaril*, Linn.

**Cov'er** = OPERCULUM.

**Cov'er-cell**, of Hepaticae, the apical cells of the neck of a young archegonium (Campbell) ; **cover-like** = OPERCULARIS ; **cov'ering** = VEXILLARIS ~ **-Plate**, in Ferns, see STEGMATA of Mettenius.

**cowled** = CUCULLATE (Crozier).

**cra'dling** = INVOLVENTIA (folia).

**Cram'pon** (Fr.), hooks or adventitious roots, which act as supports, as in ivy.

**craspedod'romous**, *-mus* (*κράσπεδον*, a border ; *δρόμος*, a course), when the lateral veins of a leaf run from midrib to margin without dividing.

**crass'us** (Lat.), thick.

**Crate'ra** (*κρατήρ*, a cup), a cup-shaped receptacle ; **crate'riform**, *crateriform'is* (*forma*, shape), goblet or cup-shaped, hemispheric or shallow in contour.

**Crab**, a disease of the larch, due to the mycelium of *Peziza Willkommii*, Hartig.

**cratic'ular** (*craticula*, a small gridiron), a resting condition of Diatomaceae, in which a pair of new valves are formed within the original valves.

**cream-colour**, white with a slight inclination to yellow.

**creep'ing**, running along or under the ground and rooting at intervals ; restricted by Syme to those cases where there is only one, or rarely two, flowering stems from each branch of the rhizome ; ~ **Stem**, often means RHIZOME.

**cre'meus** (Mod. Lat., creamy) = CREAM-COLOUR.

**Crem'ocarp**, *Cremocarp'ium* (*κρεμάω*, I hang ; *καρπὸς*, fruit), a dry and seed-like fruit, composed of two one-seeded carpels invested by

an epigynous calyx, separating when ripe into mericarps.

**cremoric'olor** (*cremeus*, *color*, colour) = CREAM-COLOUR.

**Cre'na** (Mod. Lat., a notch), a rounded tooth or notch; **Cre'nature** *Crenatu'ra*, a rounded notch on the margin of a leaf; **cre'nate**, *crena'tus*, scalloped, toothed with crenatures; **Cren'el** = CRENA; **Cren'elling** = CRENA; **cren'elled**, *crenula'ris*, margined with crenatures; **cren'ellate**, *crenella'tus*, **cren'ulate**, *crenula'tus*, crenate, but the toothings themselves small; **Cren'ule**, a diminutive Crena.

**cres'cent-shaped**, approaching the figure of a crescent, as the leaves of certain species of *Passiflora*.

**Crest**, (1) an elevation or ridge upon the summit of an organ; (2) an outgrowth of the funiculus in seeds, a sort of axil; **crest'ed**, possessing any elevated line or ridge on the surface such as may be compared with the crest of a helmet

**creta'ceous**, *-ceus* (*creta*, chalk), (1) chalky, as the chalk-glands found in Saxifrages; (2) chalk-white, dead-white.

**crev'iced** = RIMOSE.

**cri'brate** (*cribrum*, a sieve), usually written CRIBROSE; **cri'briform**, *cribriform'is* (*forma*, shape), sieve-like, pierced with many holes; ~ **Cells** = SIEVE-CELLS; ~ **Tis'sue**, containing sieve-cells and tubes; **cri'brose**, *cribro'sus*, pierced like a sieve; ~ **Cells** = SIEVE-TUBES.

**crinif'erous** (*crinis*, hair; *fero*, I bear), used by J. Smith for hirsute; **cri'nite**, *crini'tus*, bearded with long and weak hairs.

**crin'oid** (κρίνον, a lily; εἶδος, resemblance) lily-like (Crozier).

**Crin'ula** (*crinis*, hair) = ELATER; **Cri'nus**, a stiff hair on any part.

**crisp**, *crisp'us* (Lat.), curled; **crispa'bilis**, capable of curling up; **crisp'ate**, **crisped**, *crispa'tus*, *crispati'vus*, curled; **crispes'cens**, able to curl up; **Crisp'ature**, *Crispatu'ra*, (1) when the edge is excessively and irregularly divided and twisted; (2) or the leaf much puckered and crumpled, but not so much as bullate; **crispiflor'al** (*flos*, *floris*, a flower), having curled flowers; **crispifo'lious** (*folium*, a leaf), with curled leaves.

**Cris'ta** (Lat.), a crest or terminal tuft; **crist'aeform** (*forma*, shape), used by J. Smith for crested appendices in Ferns; as in *Actinostachys*, Wall.; **cris'tate**, *crista'tus*, crested.

**Critench'yma** (κριτός, chosen; ἔγχυμα, an infusion), the tissue of bundle-sheaths, open or closed envelopes which accompany fibro-vascular bundles; **crit'ical**, used of plants which need great discrimination in classifying.

**croca'tus**, **cro'ceous**, *croc'eus* (Lat.), saffron-yellow; a deep yellow tint from the stigmas of *Crocus sativus*, Linn.; **Cro'cin**, the colouring matter of the foregoing.

**crook'ed**, curved.

**Cross**, term implying a hybrid of any description; ~ **armed**, brachiate (Crozier); ~ **Breeds**, the progeny of interbred varieties; ~ **Fertiliza'tion**, fecundation by pollen from another flower of another individual; ~ **Pollina'tion**, dusting the stigma of one flower with pollen from another; ~ **Septa'tion**, division by transverse septa; ~ **Type**, in nuclear division, the formation of tetrads.

**Crossed-pits**, cells in sclerenchyma, with the slits on opposite walls at right angles to each other.

**crowd'ed**, closely pressed together or thickly set.

**Crown**, see CORONA; also (1) in Characeae, the apex of the nucule; (2) in Diatomaceae, a series of teeth connecting the frustules into filaments, as in *Stephanopyxis*; ~ of the Root, the point where root and stem meet; **crowned**, *corona'tus*, furnished with a coronet; **crown'ing**, *coro'nans*, borne on the summit of an organ.

**Cro'zier**, "anything with a coiled

end, as the young leaves of most Ferns" (Crozier).

**cru'ciate**, *crucia'tus* (Lat.), cross-shaped, used especially of the flowers of Cruciferae; ~ **Tetragonid'ia**, those gonidia formed by two divisions at right angles to each other; **Cru'cifer** (Lat., cross-bearing), a plant with four petals and tetradynamous stamens; **crucife'rous**, cross bearing, used of the corolla of Crucifers, which have four petals; **cru'ciform**, *cruciform'is* (Lat.), cross-shaped.

**cruenta'tus** (Lat., stained with blood), dyed or blotched with red.

**cruent'us** (Lat., gory), dark purplish red, the colour of gore.

**crum'pled** = CORRUGATE; ~ **Aestiva'tion**, when folded in bud irregularly, as in the poppy.

**Cru'ra** (pl. of *crus*, a leg) divisions of the teeth of the peristome in Mosses.

**cru'ral** (*crura'lis*, pertaining to the legs), "somewhat leg-shaped; used mainly in composition" (Crozier).

**Crust**, *Crust'a* (Lat., rind or shell), the hard and brittle part of certain Lichens; **crusta'ceous**, *-eus*, of brittle texture, some Lichens are thus termed; **crustuli'nus**, toast-colour, darker and warmer in tint than a cracknel biscuit.

**Cryp'ta** (Lat., a vault), sunken glands, receptacles for secretions of plants in dotted leaves.

**Cryptogam'ia** (κρυπτός, hidden; γάμος, marriage), plants destitute of stamens, pistils, and true seeds, but often reproduced as the result of a sexual act; **cryptogam'ian**, **cryptogam'ic**, *cryptogam'icus*, **cryptog'amous**, belong to the sub-kingdom just defined; **Cryptog'amist**, a botanist devoted to the study of flowerless plants; **Cryptog'amy**, the state of concealed fructification; **Cryptone'mata** (νῆμα, a thread), small cellular threads produced in Cryptostomata; **Cryp'tophyte** (φυτόν, a plant), *Cryptophy'tum*, a cryptogamous plant; **Cryptostom'ate** (στόμα, a mouth), barren conceptacles in some Algae, containing hairs, or paraphyses.

**Cryst'al** (κρύσταλλος, ice), a mineral solid, usually of regular faces or angles, found in the tissues of plants, of very various composition; **Cryst'alloid** (εἶδος, resemblance), term applied to protein crystals as being less truly angular than normal crystals, as well as swelling in water; also in contradistinction to colloid.

**Ctein'ophytes** (κτείνω, I kill; φυτόν, a plant), Fungi whose influence on their hosts is chemical only (Wakker).

**Cu'bebine**, the active principle of *Piper Cubeba*, Linn.

**cu'biform** (*cubus*, a die; *forma*, shape), dice-shaped, cubic; **Cu'bus** (Lat.), a solid figure of six square sides; **cu'bic**, *cu'bicus*, **cu'bical**, of a cubic form.

**Cu'bit** (*cubitum*, the elbow), a measure, from the elbow to the finger-tips, usually reckoned as equivalent to 18 inches, 60 cm.; **cubita'lis** (Lat.), about half-a-yard in length.

**cuculla'ris**, **cu'cullate**, *cuculla'tus* (*cucullus*, a hood), hooded, or hood-shaped; **cucull'iform** (*forma*, shape), hood-like in shape; **Cucull'us**, a hood.

**cu'cumiform** (*cucumis*, a cucumber), shaped like a cucumber (Crozier).

**cucurbita'ceous** (*cucurbita*, a gourd, + aceous), like a gourd; of gourd-like growth; **cucurbiti'nus**, has the same meaning.

**Cud'bear**, the Scotch name for ORCHIL.

**Cul-de-sac** (Fr.), "a tubular or bag-shaped cavity, closed at one end" (Crozier).

**Culm**, *Culm'us* (a stalk, especially of grain), the peculiar hollow stem or "straw" of grasses; **culm'eus** (Lat.), straw-like; **culmic'olous** (*colo*, I inhabit), growing on the stalk of grasses; **culm'ifer**, **culmif'erous** (*fero*, I bear), producing culms.

**cult'rate**, *cultra'tus* (Lat., knife-like),

the shape of a knife-blade ; **cult'riform**, *cultriform'is* (*culter*, a knife ; *forma*, shape), in shape like a knife, or coulter.

**Cult'ures**, in botany, applied to experimental growth conducted in the laboratory.

**cu'neal** (Crozier), **cunea'rius** ‡ (Lindley), **cu'neate**, *cunea'tus*, **cu'neiform**, *cuneiform'is* (*cuneus*, a wedge), wedge-shaped, triangular.

**cunic'ulate**, *cunicula'tus* (*cuniculus*, a rabbit), pierced with a long deep passage open at one end, as the peduncle of *Tropaeolum*.

**Cunix** ‡ (deriv. ?) "The separable place which intervenes between the wood and bark of exogens" (Lindley).

**Cup**, (1) an involucre, as of the acorn ; (2) the receptacle, or "shield" in some Lichens ; (3) used for DISCOCARP ; **~ shaped**, formed like a goblet, *see* CRATERIFORM.

**cu'pola-shaped**, nearly hemispherical, like an acorn-cup.

**cu'preus** (*cuprum*, copper), copper-coloured, with its metallic lustre.

**Cu'pule**, *Cu'pula* (Lat., a little cup), the cup of such fruits as the acorn, an involucre composed of bracts adherent by their base, and free or not, upwards ; **cu'pula-shaped** (Lindley) *see* CUPOLA-SHAPED ; **cupula'ris**, **cu'pulate**, *cupula'tus*, furnished with, or subtended by a cupule ; **Cupu'lifer** (Lat.), **cupulif'erous** (*fero*, I bear), producing cupules ; **cu'puliform**, *cupuliform'is* (*forma*, shape), cupola-shaped.

**Cu'rarine**, an alkaloid from "Curare," obtained from several species of *Strychnos*.

**Cur'cumine**, the colouring matter of the roots of Turmeric, *Curcuma longa*, Linn.

**Curl**, a disease, shown by deformed and curled leaves, ascribed in some cases to *Exoascus deformans*, Fuckel ; **curled**, when a leafy organ is folded or crumpled, as Endive.

**Cur'tain** = CORTINA.

**Curv'ature**, continued flexure or bending from a right line ; **~ of Concuss'ion**, that produced as the result of a sudden blow ; **Darwin'ian ~**, effects produced on growing organs, as root-tips in consequence of irritation : **Sachs's ~**, the difference in growth of the two sides of the root (Wettstein) ; **curva'tus** (Lat.), bent as a bow, or arc of a circle ; **Curve**, the same as curvature ; **~ ribbed**, **~ veined** = CURVINERVED ; **curved**, bent, not rectilinear ; **curvicau'date** (*cauda*, a tail), having a curved tail ; **curvicost'ate** (*costa*, a rib), with curved ribs or veins ; **curviden'tate** (*dens*, a tooth), with curved teeth, **cur'viform**, (*forma*, shape) = CURVED ; **cur'vinerved**, *curviner'vius*, *curvive'nius* (Lat.), having curved nerves, especially applied to monocotyledons ; **curvip'etal** (*peto*, I seek), Vöchting's term for the causes which tend to curve an organ, **curvise'rial** (*series*, a row), in curved or oblique ranks.

**Cush'ion**, (1) the enlargement at or beneath the insertion of many leaves, the pulvinus ; (2) portion of a Fern-prothallus on which archegonia are borne, often perceptibly thicker than the margins ; **cushion'ed**, tufted, as in some Mosses ; **~ Fun'gi**, Fungi growing in tufts.

**Cusp**, *Cusp'is* (Lat. a point), a sharp, rigid point ; **cusp'idate**, *cuspida'tus*, tipped with a cusp.

**cut**, the same as incised, or in a general way as cleft.

**Cu'ticle**, *Cuti'cula* (Lat. the outer skin), the outermost skin or pellicle, containing the epidermis ; *Cuti'cula den'sa*, *~ hymeniform'is*, *~ primordia'lis*, *~ pro'pria*, *~ regula'ris*, *~ subnul'la*, modifications proposed by Fayod, in Ann. Sc. Nat., Sér. VII. ix. (1889) 243-244 ; **Cutocell'uloses** (+ Cellulose) modified cellulose, the cuticularized layers of cell-wall, impregnated with cutin ; **Cuticulariza'tion** = CUTINIZATION.

**Cu'tin** (*cutis*, the skin), the substance,

allied to Suberine, which repels liquids from passing the cell-wall; **Cutiniza'tion**, the modification of the cell-wall so as to become impervious to liquids; **Cu'tis**: (1) the skin or epidermis; (2) the peridium of some Fungi; **Cu'tose**, the transparent film covering the aërial organs of plants.

**cut-toothed**, "deeply and sharply toothed" (Crozier).

**Cut'tage**, multiplication by cuttings (L. H. Bailey).

**Cut'ting**, (1) the severed portion of a plant, used for propagation; (2) the outline of a leaf or frond when incised.

**cyali'nus** ‡ (Mod. Lat.) = CYANOUS.

**Cyam'ium** ‡ (*κύαμος*, a bean), "a kind of follicle resembling a legume" (Lindley).

**cyanae'us**, ‡, *cyaneus* (*κυάνος*, cornflower), a clear full blue, cornflower-coloured; **cyanell'us**, almost a skyblue; **cyan'ic**, blue; ~ **Flow'ers**, those whose colouring tends towards blue, in contrast to XANTHIC Flowers; **cyanoch'rous** (*χρώς*, *χροός*, the skin), having a blue skin; **cyanoph'ilous** (*φιλέω*, I love), applied to nuclei which readily take a deep blue stain; **Cyanophy'cin** (*φύκος*, sea-weed), the blue colouring matter of Algae; **Cy'anophyll** (*φύλλον*, a leaf) = KYANOPHYLL.

**cyath'iform**, *cyathiform'is* (*κύαθος*, a wine-cup; *forma*, shape), shaped like a drinking-cup; **Cyath'ium**, the inflorescence of *Euphorbium*, consisting of involucral bracts, with glands between single stamens each equivalent to a male flower, and a trilocular ovary; **cy'athoid** (*εἶδος*, resemblance); **Cyath'olite** (*λίθος*, stone) = COCCOLITH; **Cy'athus**, the cup-like body which contains propagula in *Marchantia*, etc.

**Cyb'ele** (pr., Sib'-e-le), H. C. Watson's name for an estimation of the distribution of plants in a given area, an analogue to Flora; the name is mythological.

**Cy'clamine**, a principle found in the root of *Cyclamen europaeum*, Linn.

**Cy'cle** (*κύκλος*, a circle); (1) used for one turn of a helix or spire, in leaf arrangement; (2) for a whorl in floral envelopes; **cy'clic**, *cy'clicus*, applied to foliar structures arranged in whorls, coiled into a cycle or relating to a cycle; **cy'clical**, rolled up circularly, as many embryos; **Cy'clogens** (*γεννάω*, to bring forth), exogenous plants, from their exhibiting concentric circles in the section of their stems; **cyclog'enous**, having concentric circles in the stem, exogenous; **Cy'clome**, a ring-shaped cushion of anthers (M'Nab); **Cyclo'sis**, the rotation of protoplasm within the cell, in one or more currents; **cyclosperm'ous** (*σπέρμα*, a seed), with the embryo coiled round the central albumen.

**cyg'neous**, *cyg'neus* (Lat., pertaining to a swan), the seta of Mosses when curved so as to suggest a swan's neck.

**cylindra'ceous**, *-eus* (*κύλινδρος*, a cylinder, + aceous), somewhat cylindric; **Cylindranth'erae** (*ἄνθος*, a flower) syngenesious, from the stamens forming a tube; **Cylindrench'yma** (*ἔγχυμα*, an infusion), tissue made up of cylindric cells; **cylind'ric**, **cylind'rical**, elongated, with a circular cross-section; **Cylindrobasioste'mon** (*βάσις*, a pedestal; *στήμων*, a stamen) monadelphous.

**Cyma'tium** (*κυμάτιον*, a little wave) = APOTHECIUM.

**cymb'aeform**, more correctly **cymb'iform**, *cymbiform'is* (*cymba*, a boat; *forma*, shape), boat-shaped, used for Diatoms, or the keel of Leguminosae.

**Cymbell'ae** (*cymbula*, a little boat), reproductive locomotive bodies of an elliptic form, found in some Algae.

**Cyme**, *Cy'ma* (*κῦμα*, a wave, Lat., the sprout of a cabbage), a flower-cluster of determinate or centrifugal type, especially a broad and

flattened one; **hel'icoid** ~ (*a*) a Bostryx, and (*b*) a Drepanium, the lateral branches of the successive ramifications always occurring on the same side; **scorp'ioid** ~ (*a*) Cincinnus, and (*b*) Rhipidium, the lateral branches always occurring alternately on opposite sides; **Cymelet**, pr. sīm-let, a little cyme; **cymif'erous** (*fero*, I bear), producing cymes; **cy'mo-bot'ryose** [or **bot'ryoid**], when cymes are arranged in a botryoid manner; **cy'moid** (εἶδος, resemblance), having the form of a cyme; **cy'mose**, *cymo'sus*, **cy'mous**, bearing cymes or relating to cymes; ~ **Umb'el**, one with centrifugal inflorescence; **Cy'mule**, a diminutive cyme or portion of one.

**Cyn'apine**, an alkaloid occurring in *Aethusa Cynapium*, Linn.

**Cynarrhod'ion**, *-dium* (κύων, a dog; ῥόδον, a rose), a fruit like that of the dog-rose, fleshy, hollow, and enclosing achenes.

**Cy'on**, Grew's spelling of Cion = Scion.

**cypera'ceous** (*Cyperus*, + aceous), relating to sedges, from the typical genus *Cyperus*.

**Cyphel'la** (κυφός, bent), "collections of gonidia in the form of cups" (Lindley); **Cyphel'lae**, orbicular fringed spots like dimples, under the thallus of Lichens; **cyphel'late**, marked with Cyphellae.

**Cyp'sela** (κυψέλη, a box), an achene invested by an adnate calyx, as the fruit of Compositae.

**Cyr'rhus** = Cirrhus, a tendril.

**Cyst**, *Cyst'is* (κύστις, a cavity), (1) a sac or cavity, usually applied to a structure whose nature is doubtful; (2) all cells of non-sexual origin in green Algae which reproduce the plant by germination after a resting period as resting spores, hypnospores, chronospores, aplanospores, akinetes (F. Gay); **Cyst'a** ‡ Necker's term for a berry with dry, membranous envelope, as in *Passiflora*; **Cyst'id**, a proposed emendation for **Cystid'ium**; (1) large, one-celled, sometimes inflated bodies, projecting beyond the basidia and paraphyses of the hymenium of Agarics, of unknown function; (2) = Utricle; **Cyst'oblast** (βλαστός, a shoot), cited by Crozier for Cytoblast; **Cyst'ocarp** *Cystocarp'ium* (καρπός, fruit), a sporophore in Algae, especially Florideae, a cyst containing sexually produced spores; **Cyst'olith** (λίθος, stone), mineral concretions, usually of calcium carbonate on a cellulose stalk, occurring chiefly in special cells of the Urticaceae, as in *Ficus elastica*, Roxb.; **Cyst'ophore** (φορέω, I carry), the same as Ascophore; **Cyst'osore** *Cystoso'rus* (σωρός, a heap), a group of resting-spores within a cell as in *Woronina*; **Cyst'ospore** (σπορά, a seed) = Carpospore (Strasburger); **Cyst'ula** = Cistula, Cistella.

**Cy'tase** (κύτος, a hollow vessel), an enzyme found in germinating seeds which hydrolyses cellulose; **Cytas'ter** (ἀστήρ, a star), a series of achromatic rays from each pole of the nucleus into the cytoplasm in karyokinesis (Crozier); **Cytench'yma** (ἔγχυμα, an infusion), vacuolar structure in cells, fluid which separates from protoplasm as vacuoles (Crozier); **Cy'tioderm** (δέρμα, skin), the cell-wall in Diatomaceae (Crozier).

**Cyt'isine**, an alkaloid occurring in the genus *Cytisus*.

**Cy'toblast** (κύτος, a hollow vessel; βλαστός, a shoot), (1) Schleiden's name for the cell-nucleus; (2) a colony of bioblasts which have lost their independent existence; cf. Bioblast; **Cytoblaste'ma**, the formative material in which cells are produced, and by which they are held in union; protoplasm; **Cy'todes**, (1) cells; (2) nuclear elements in which the caryosomes are not grouped into nuclei (Vuillemin); **Cytodier'esis** (διαίρεσις, division), cell-division with nuclear division, and formation of a nuclear-spindle and asters (Crozier);

**Cytog'amy** (*γάμος*, marriage), the union of cells; **Cytogen'esis** (*γένεσις*, beginning), origin and development of cells; sometimes written Cytiogenesis; **cytogenet'ic**, pertaining to cell-formation; **cytog'enous**, having connective tissue; **Cyto'geny** = CYTOGENESIS; **Cytohy'drolist** (*ὕδορ*, water; *λύσις*, a loosing), an enzyme which attacks and breaks up the cell-wall by hydrolysis; **Cytohy'aloplasm** (+ Hyaloplasm), the protoplasm of the cell, apart from any granules or foreign matter; **Cy'tolist** (*λύσις*, a loosing), an enzyme which dissolves the cell-wall; **cytolyt'ic**, of a ferment so acting; **Cytol'ogy** (*λόγος*, discourse), the science of the cell, its life history, nuclear divisions and development; adj. **cytolog'ic, cytolog'ical**; **Cytomi'crosomes** (*μικρὸς*, small; *σῶμα*, a body), the granules or microsomes imbedded in the cell-protoplasm; **Cy'toplasm** (*πλάσμα*, moulded), the general protoplasm of the cell (Strasburger); **Cy'toplast**, the cytoplasm as a unit, in contrast to the nucleus; **Cytoplast'in**, a proteid which apparently forms the bulk of the Cytoplasm; **Cy'tosomes** (*σῶμα*, a body), Vuillemin's name for the granules of cell-protoplasm; cytomicrosomes.

**dacryoi'deus** (*δάκρυ*, a tear; *εἶδος*, resemblance), used for pear-shaped fruit, oblong and rounded at one end, pointed at the other.

**dactyli'nus** (*δάκτυλος*, a finger), divided like fingers; **Dactylorhi'za** (*ῥίζα*, root), the forking of roots; **dac'tylose**, *dactylo'sus*, fingered, or finger-shaped.

**daed'aleous**, *daed'aleus* (Lat. = skilful craft), (1) the apex of a leaf irregularly jagged, though not arcuate; (2) wavy and irregularly plaited as the hymenium of some Agarics; **Daedalench'yma** (*ἔγχυμα*, an infusion), tissue made up of entangled cells, as in some Fungi.

**Dah'line**, a substance resembling starch from the tubers of the genus *Dahlia*.

**Dam'mar**, a transparent resin from *Agathis loranthifolia* Salisb., formerly named *Dammara orientalis*, Lamb.

**Damp'ing**, a cultivator's term for premature decay in plants, especially young seedlings, attributed to excess of moisture.

**Daph'nin**, the bitter principle of *Daphne Mezereum*, Linn.

**Darwin**, *see* KNIGHT-DARWIN Law.

**Darwin'ian Curv'ature**, the bending induced by the irritation of any foreign substance close to the apex of the root.

**date-shaped**, resembling a date in form.

**dasyphyll'ous**, *-lus* (*δασὺς*, thick; *φύλλον*, a leaf), (1) thick-leaved; (2) leaves thickly set; (3) with woolly leaves.

**Datis'cin**, a substance having the appearance of grape-sugar, first obtained from *Datisca cannabina*, Linn.; it has been used as a yellow dye.

**Datu'rine**, an alkaloid of *Datura Stramonium*, Linn.

**Daugh'ter-cells**, young cells derived from the division of an older one, the mother-cell; ~ **Chro'mosome**, a secondary chromosome, derived from division of the original; ~ **Skein**, stages in nuclear division when the chromatin is more or less in a reticulate condition; further distinguished by some observers into "loose" or "close"; ~ **Spore**, a spore produced immediately from another or upon a promycelium; ~ **Star**, one of the groups of chromatic filaments at the poles of a dividing nucleus; the two together with the connecting spindle constitute the "Dyaster" stage.

**Day-position**, the pose assumed by leaves during the day, in contradistinction to that taken for the night.

**deal'bate**, *dealba'tus* (Lat., white-

washed), whitened ; covered with an opaque white powder.

**Decagyn'ia** (*δέκα*, ten; *γυνὴ*, woman), a Linnean artificial order of plants with ten pistils ; **decagyn'ian, decag'ynous**, having ten styles or carpels ; **decam'erous**, *decam'erus* (*μέρος*, a share), in tens ; **Decan'dria** (*ἀνὴρ, ἀνδρὸς*, a man), a Linnean artificial class, of plants with ten stamens ; **decan'drian, decan'drous**, *-rus*, having ten stamens ; **decapet'alous**, *-lus* (*πέταλον*, a flower-leaf), with ten petals ; **decaphyll'ous**, (*φύλλον*, a leaf), with ten leaves or segments ; **decari'nus** (*ἄρρην*, male), Necker's term for ten stamens and one pistil ; **decasep'alous** *-lus* (+ SEPALUM) with ten sepals ; **decasperm'al** (*σπέρμα*, a seed), having ten seeds.

**decemdent'ate** (*decem*, ten ; *dens, dentis*, a tooth), having ten teeth, as the capsule of *Cerastium ;* **decem'fid** (Crozier), **decem'fidus** (*fid*, the root of *fido*, I split), ten cleft ; **decemlocula'ris** (*loculus*, a compartment), with ten cells, as an ovary.

**decid'uous**, *-uus* (*decido*, I fall down), falling in season, as petals fall after flowering, or leaves in autumn, evergreens excepted ; **Decid'uousness**, the quality of falling once a year.

**dec'linate**, *declina'tus* (Lat. turned aside), bent or curved downward or forward ; **decli'ned**, directed obliquely.

**Decoloura'tion**, *Decolora'tio* (Lat.), absence of colour ; **decolora'tus** (Lat.), discoloured, discharged of colour, colourless.

**decom'pound**, *decompos'itus* (Lat.), several times divided or compounded.

**decorti'cated** (*decorticatio*, barking), deprived of bark ; **Decortica'tion**, stripping off bark.

**decre'asingly pinn'ate**, where leaflets diminish in size from the base upwards.

**decum'bent**, *-ens* (Lat. reclining), reclining, but with the summit ascending.

**decur'rent**, *decur'rens* (Lat.), running down, as when leaves are prolonged beyond their insertion, and thus run down the stem ; **decur'sive**, *decursi'vus* (*decursus*, a descent) = DECURRENT ; **decur'sively pin'nate**, the leaf seemingly pinnate, but the leaflets decurrent along the petiole.

**decus'sate**, *decussa'tus* (Lat. divided crosswise), in pairs alternately at right angles ; **Decussa'tion**, crossing by pairs of leaves.

**Dédoublement** (Fr.), doubling, = CHORISIS.

**Deduplica'tion** (Fr. déduplication), a synonym of the last.

**def'erent** (*defero*, I bring down), conveying anything downward.

**deferred' Shoots**, those produced by buds which have remained long dormant.

**def'inite**, *defini'tus* (*definite*, precisely), (1) precise ; (2) of a certain number, as of stamens not exceeding twenty ; (3) applied to inflorescence it means cymose ; ~ **Inflores'cence**, where the axis ends in a flower ; **defin'itive Nu'cleus**, a result of the fusion of one nucleus each from the micropylar and chalazal ends of the embryo sac.

**defix'ed**, *defix'us* (Lat. fastened) = immersed.

**deflect'ed**, *deflex'us* (Lat. bent aside), bent or turned abruptly downwards ; **deflexed'**, bent outwards, the opposite of inflexed ; **Deflex'ion**, turned downwards.

**defio'rate**, *deflora'tus* (Lat.), past the flowering state.

**deflow'er**, to deprive of flowers.

**defl'uent** (Lat. *defluens*), flowing down.

**defo'liate**, *defolia'tus* (Mid. Lat.), having cast its leaves ; **Defolia'tion**, the act of shedding leaves.

**Deforma'tion** (*deformis*, misshapen), a malformation or alteration from the normal sense ; **deformed'**, disfigured, distorted ; **Deform'ity**, *Deformitas* (Lat.), an unshapely organism.

**Degenera'tion** (*degenero*, to become unlike the race), an alteration for the worse, or less highly developed, as when scales appear instead of leaves.

**Degrada'tion** (*degredior*, I descend), less highly differentiated, simpler structures taking the place of more elaborate;—lower in function, retrograde metamorphosis, or a katabolic change, complex substances resolving into simpler; ~ **Product**, the result of katabolism, as mucilage.

**dehisce'** (*dehisco*, I yawn), to open spontaneously when ripe, as seed capsules, etc.; **Dehis'cence**, *Dehiscent'ia*, the mode of opening of a fruit capsule or anther by valves, slits or pores; **dehis'cent**, *dehis'cens*, **dehis'cing**, splitting into definite parts.

**Dehydra'tion** (*de*, privative; *ὕδωρ*, water), depriving of water as a component, as by the use of alcohol, or calcic chloride.

**Delimita'tion** (Late Lat. *delimitare*), used for ABJUNCTION; cutting off by a precise limit.

**deliques'cent**, *-ens* (Lat. melting away), dissolving or melting away, as (1) when the stem loses itself by repeated branching; or (2) when certain Agarics become fluid at maturity.

**Deliq'uium** ‡ (*deliquus*, wanting) = emarginate (Lindley).

**Del'phine**, an alkaloid present in *Delphinium Staphisagria*, Linn.

**delta-leaved** (*δέλτα*, the Greek letter Δ), having triangular leaves. **del'toid**, *deltoi'des*, *-deus* (*εἶδος*, resemblance), shaped like the Greek Δ; an equilateral triangle.

**demersed'**, *demer'sus* (Lat. plunged under), under water, especially of a part constantly submersed.

**demis'sus** (Lat.), hanging down, lowered.

**Dena'rii** ‡ (Lat.) = ten together (Lindley).

**den'driform** (*δένδρον*, a tree; *forma*, shape) = DENDROID; **dendrit'ic** *-icus*, **-ical**, having a branched appearance, as the lirellae of Lichens, etc.; **Dendri'tes**, cellulose in crystals; **Dendrio-thamno'des**, with thallus branched as a bush, as the Reindeer Lichen, *Cladonia rangiferina*, Hoffm.; **den'droid**, *dendroi'des*, *dendroi'deus* (*εἶδος*, resemblance), tree-like, in form, or branching; **Den'drolite** (*λίθος*, stone), a fossil tree; **Dendrol'ogist** (*λόγος*, discourse), one skilled in the knowledge of trees; **Dendrol'ogy**, the study of trees.

**deni** (Lat.), by tens, ten together.

**den'igrate**, *denigra'tus* (Lat.), blackened.

**Den'izen**, H. C. Watson's term for plants suspected of foreign origin, though maintaining their place, as *Viola odorata*, Linn.

**Dens** (Lat.), a tooth; **den'tate**, *denta'tus* (Lat.), toothed, especially with salient teeth directed forward; **denta'to-crena'to** = CRENATO-DENTATUS; ~ **lacinia'tus**, with toothings irregularly extended into long point; ~ **serra'tus**, the toothings tapered and pointed forward; **Dent'icle**, a small tooth (Crozier).

**dentic'ulate**, *denticula'tus*, minutely toothed; **Denticula'tions**, small processes or teeth; **dent'iform** (*forma*, shape), J. Smith's equivalent for toothed; **den'toid** (*εἶδος*, form), tooth-shaped.

**denu'date**, *denuda'tus* (Lat.), stripped, made bare, or naked.

**deoperc'ulate**, *deopercula'tus* (*de*, *operculum*, a lid); (1) when the operculum of a Moss does not separate spontaneously from the sporophore; (2) having lost the operculum.

**deor'sum** (Lat. from *de*, down, *versus* turned towards), downward.

**depaup'erate**, *depaupera'tus* (Lat.), impoverished as if starved, reduced in function.

**dep'lanate**, *deplana'tus* (Lat.), flattened or expanded.

**depend'**, **depen'dent**, *depen'dens* (Lat.) hanging down.

**Depos'its** (*depositus*, laid aside), secondary growths on the cell-

wall, more or less covering it, in various forms.

**depres'sed**, *depres'sus* (Lat.), sunk down, as if flattened from above; **depress'o-trunca'tus** = RETUSE; **Depres'sio** (Lat.), a pressing or sinking down, a little hollow; ~ **dorsa'lis**, a depression in the spores of some Agarics extending along the back of the spore; ~ **hila'ris**, a similar depression, but of less extent, above the hilum (Fayod).

**deregula'ris** ‡ (*de*, opposed; *regularis* in order), between regular and irregular (Lindley).

**Deriv'ative Hy'brids**, those sprung from a union of a hybrid, and one of its parent forms or another hybrid.

**Der'ma** (*δέρμα*, *δέρματος*, skin), surface of an organ, bark, or rind; **Dermacalypt'rogen** (*καλύπτρα*, a veil; *γένναω*, I bring forth), Schwendener's term for a common histogen which produces root-cap and root-epidermis in Phanerogams; **derm'al**, relating to the outer covering; ~ **Tis'sue**, the substance of the epidermis and periderm; **dermati'nus**, applied to those plants such as Lichens, which live on bark or epidermis; **dermat'ioid** (*εἶδος*, form), skin-like in function or appearance; **Derm'atocyst**, *Dermatocys'tis* (*κύστις*, a bag or pouch), inflated hairs on the surface of the sporophore of young Agarics; **Dermat'ogen** (*γένναω*, I bring forth), the meristem forming the layer of nascent epidermis; primordial epidermis; **Dermat'ophyte** (*φυτὸν*, a plant), any Fungus parasitic on the skin of man or other animals (Crozier); **Dermat'osomes** (*σῶμα*, a body), Wiesner's term for granular bodies in rows, united and surrounded by protoplasm, which form the cell-wall; **Dermoblas'tus** (*βλαστὸς*, a shoot), "the cotyledon formed by a membrane that bursts irregularly" (S. F. Gray); **Dermocalypt'rogen** see DERMACALYPTROGEN.

**descend'ing**, *descen'dens* (Lat.), tending gradually downwards; (1) as the branches of some trees; (2) as the roots; ~ **Ax'is**, the root system; ~ **Metamorph'osis**, substitution of organs of a lower grade, as stamens for pistils, petals for stamens, etc.; ~ **Sap**, formerly applied to the Cambium; **Descen'sus** ‡ = Root.

**Deser'tion** of Host = LIPOXENY.

**des'inens**, *Desinen'tia* (Lat., ceasing), ending in, the manner in which a lobe terminates.

**Desmobry'a** (*δεσμὸς*, a bond; *βρύον*, a moss), a division of Ferns, where the fronds are adherent to the caudex; *cf.* EREMOBRYA; **Des'mogen** (*γένναω*, I bring forth), distinguished as **pri'mary** ~, the procambium, or embryonic tissue from which the vascular tissue is afterwards formed; or **sec'ondary** ~, formed from the cambium, afterwards transformed into permanent vascular strands.

**destruct'ive Metab'olism**, those changes which take place during the waste of tissues; ~ **Par'asite**, one which seriously injures or destroys the host.

**detect'us** (Lat., laid bare) = naked.

**deter'minate**, *determina'tus* (Lat., bounded), definite; ~ **Growth**, when the season's growth ends with a bud; ~ **Inflores'cence**, when it ends with a bud, as in cymes; **Determina'tion**, *-atio*, the ascertaining the names and systematic position of plants, identification.

**Deuterog'amy** (*δεύτερος*, the second; *γάμος*, marriage), peculiar nuclear fusions in certain Cryptogams, superposed upon and subsequent to the sexual act (P. Groom); **Deuteroplas'ma** (*πλάσμα*, moulded) = PARAPLASM; sometimes contracted into **Deut'oplasm**; **Deuterostroph'ies** (*στροφὴ*, a twist or turn), spirals of a third degree in the development of leaves.

**Devel'opment**, the gradual extension of the parts by which any organ or plant passes from its beginning to its maturity.

**Devia'tion, probable,** Galton's term for probable variation.

**Dew-leaves,** leaves which slope upwards, so that dew is collected.

**dex'trad,** an unusual modification of DEXTRAL = DEXTRORSE (*dextra*, the right hand); **Dextrin,** a substance produced during the transformation of starch into sugar, said to be of two forms:—ACHROODEXTRIN and AMYLODEXTRIN; **Dex'trinase,** an enzyme stated to be present in diastase (Wysman); **dex'trorse,** *dextror'sus* (from *versus*, turned towards), towards the right hand; **dex'tror'sum volu'bilis** (Lat.), twining towards the right; **Dex'trose,** glucose, or fruit sugar, it turns the plane of polarization to the right; *cf.* LEVULOSE; **dex'tro-ro'tatory,** turning towards the right.

**di-, dis-,** in Greek compounds = two, or double.

**Diache'nium** (*δι*, two, + Achenium), or **Diake'nium** = CREMOCARP.

**Diach'yma** (*διὰ*, through; *χύμα*, a libation), Link's term for MESOPHYLL.

**Diadel'phia** (*δι*, two; *ἀδελφὸς*, a brother), a Linnean class having the stamens in two bundles or brotherhoods; **diadelph'ian, diadelph'ous,** *-us, -icus*, with two groups of stamens.

**diad'romous** (*διὰ*, through; *δρόμος*, course), applied to a fan-shaped venation, as in *Gingko biloba*, Linn.

**diageotrop'ic** (*γῆ*, the earth; *τρόπος*, a turn), a modified form of geotropism, the organs placing themselves in a horizontal position, as though opposing forces were neutralised; **Diageot'ropism,** the state just described; **Diagno'sis** (*γνῶσις*, wisdom), a brief distinguishing character; **diag'onal** (*γωνία*, angle), a mean between two forces, a compromise of position; ~ **Plane,** in a flower, any vertical plane which is not antero-posterior (front to back) or lateral (side to side); ~ **Posit'ion,** one intermediate between median and lateral; ~ **Sym'metry,** applied to the valves of Diatoms when the torsion amounts to 180°; **Di'agram** (*γραμμή*, an outline), see FLORAL DIAGRAM; **Diaheliot'ropism** (*ἥλιος*, the sun; *τρόπος*, a turn), growth more or less horizontal, under the influence of light, as when leaves place themselves at right angles to incident light; adj., **diaheliotrop'ic.**

**dialycarp'ic** (*διαλύω*, I disband; *καρπὸς*, fruit), having a fruit composed of distinct carpels; **Dialydes'my** (*δεσμὸς*, a band), the breaking up of a stele, into separate bundles, each with its own endodermis; **Dialypet'alae** (*πέταλον*, a flower-leaf), Endlicher's equivalent for the POLYPETALAE of Jussieu; **dialypet'alous,** polypetalous; **dialyphyll'ous** (*φύλλον*, a leaf), bearing separate leaves; **dialysep'alous** (+SEPALUM), bearing separate sepals; **Dial'ysis,** the separation of parts normally in one, especially parts of the same whorl; **Dialyste'ly** (*στήλη*, a post), a variation of POLYSTELY, in which the separate steles remain for the most part separate during their longitudinal course.

**diamesog'amous** (*διὰ*, through, *μέσος*, middle, *γάμος*, marriage), fertilization by the means of some external agent, as wind or insects; **Diamesog'amy,** the condition just defined.

**Dian'dria** (*δίς*, two, *ἀνήρ*, *ἀνδρὸς*, a man), a Linnean class with plants of two stamens; **dian'drian, dian'drous,** *-rus*, (*diander*), possessing two stamens.

**diaph'anous,** *-us* (*διά*, through, *φαίνω*, I show), permitting the light to shine through; also written **dioph'anus** ‡; **Diaph'ery** (*φέρω*, I bear), the calycine synthesis of two flowers (Morren); **Di'aphragm** (*φράσσω*, I enclose), a dividing membrane or partition, as (1) the constriction in the neck of the nucule in *Chara*, from the inward projections of the segments; (2) the transverse septa in the stem of *Equisetum* or of grasses; (3) the layer separating the prothallium

from the cavity of the macrospore in Vascular Cryptogams; **diaphyl'lous** (*φύλλον*, a leaf) = DIALYPHYLLOUS; **Diaph'ysis** (*φύω*, to make grow), proliferation of the inflorescence.

**di'arch** (*δίς*, two, *ἀρχή*, beginning), two protoxylem groups, used of the steles of roots; **diari'nus** (*ἄρρην*, male), Necker's term for diandrous.

**Di'astase** (*διάστασις*, standing apart), an amylolytic enzyme which converts starch into malt-sugar; ~ **of Transloca'tion**, attacks starch grains gradually over their whole surface, it is almost universally distributed in plants; ~ **of Secre'tion**, acts by corrosion, attacking parts of the starch-grain first; it is formed by the glandular epithelium of the scutellum of grasses; adj. **diastat'ic**.

**Di'aster** (*δίς*, two, *ἀστήρ*, a star) see DYASTER.

**Diast'ole** (*διαστολή*, separation), the slow dilation of a contract[ile] vesicle; *cf.* SYSTOLE.

**Diatherm'ancy** (*διά*, through, *θερμαίνω*, I warm), the relative conductivity of a medium with regard to the transmission of heat (T. W. Engelmann).

**diatoma'ceous**, resembling or consisting of diatoms whose type is *Diatoma*; **Diat'omine**, the colouring matter of Diatoms, phycoxanthine; **Diat'omist**, one devoted to the study of Diatoms; **Diat'omphile** (*φιλέω*, I love), an enthusiastic student of Diatoms.

**diatrop'ic** (*διά*, through, *τρόπος*, twining), used of organs which place themselves transversely to the operating force.

**dibot'ryoid** (*δίς*, double, + botryoid), a compound inflorescence, the branches of the first and succeeding orders being botryoid, such as the compound umbel, panicle, or spike.

**Dicar'otin** (*δίς*, twice, + CAROTIN), a lipochrome pigment; **dicarp'ellary** (*καρπός*, fruit), composed of two carpels or pistil-leaves.

**dicha'sial** (*διχάζω*, I disunite), relating to a DICHASIUM; ~ **Cymes**, cymes whose secondary members are dichasia, such as occur in Euphorbiaceæ; **Dicha'sium**, a false dichotomy in which two lateral shoots of nearly equal strength arise from the primary axis below the flower which terminates the apex, the process being repeated by each set of branches; a two-parted or two-ranged cyme; **dichast'ic**, spontaneously dividing; **dichlamyd'eous** (*χλαμύς*, *χλαμύδος*, a cloak), having a double perianth, calyx and corolla; **dichoblas'tic** (*βλαστός*, a shoot), suggested by Celakovsky to replace "dichotomous" when the repeated dichotomy develops into a sympodium; **dichog'amous** (*δίχα*, in two, *γάμος*, marriage), hermaphrodite with one sex earlier mature than the other, the stamens and pistils not synchronizing; **Dichog'amy**, insuring cross-fertilization, by the sexes not being developed simultaneously.

**Dichotcarp'ism** (*διχοτομέω*, I cut in two, *καρπός*, fruit), Cooke's term for Fungi producing two distinct forms of fructification, dimorphic as to fruit; **dichot'omal**, pertaining to a bifurcation, as a ~ **Flow'er**, one seated in the fork of a dichasium; **dichot'omize**, to fork or divide in pairs; **dichot'omous**, *-us*, forked, parted by pairs; ~ **Cyme**, of English authors = DICHASIUM; **Dichot'omy**, the state of being repeatedly forked; – **Del'icoid** ~, in each successive forking, the branch which continues to develop is on the same side as the previous one, the other branch aborts; **False** ~, = DICHASIUM; **Scorp'ioid** ~, the branches develop on each side alternately; **Dichot'ypy** (*τύπος*, a type), the occurrence of two different forms of the same organ on the same stock.

**Dicle'sium** (*δίς*, twice, *κλῆσις*, closing), an achene within a separate and free

covering of perianth, as *Mirabilis*; **di'clinous** (δίς, two, κλίνη, a bed), unisexual, having the stamens in one flower, and the pistils in another; **Di'clinism**, the separation of pollen and stigma in space, as dichogamy is in time.

**dicoc'cous**, *-us* (δίς, two, κόκκος, a kernel), having fruit of two Cocci; **dicoe'lous** (κοῖλος, a hollow), with two cavities; **Dicot'yls**, an abbreviation for **Dicotyledo'neae**, **Dicotyle'dons** (κοτυληδών, cup-shaped hollow, used for seed-lobe), plants of the class denoted by their possession of two cotyledons; **dicotyle'donous**, *-nus*, having a pair of seed-lobes.

**dictyod'romous** (δικτύον, a net, δρόμος, a course), with reticulate venation; **Dic'tyogens** (γένναω, I bring forth), plants having netted veins, proposed by Lindley as intermediate between his ENDOGENS and EXOGENS; **dictyog'enous**, applied to monocotyledons with netted veins; **~ Lay'er**, a layer of meristem general in monocotyledons, which gives rise to the central "body" and cortex of the young roots (Mangin).

**dicy'clic** (δίς, two, κύκλος, a circle), (1) when a series of organs is in two whorls as a perianth; (2) applied to biennials; **dicy'mose** (κῦμα, a wave), doubly cymose; **did'romic** (δρόμος, coarse), doubly twisted, as the awns in *Danthonia*, *Stipa*, etc.; **Did'romy**, double torsion.

**did'ymous**, *-us* (δίδυμος, twin), (1) found in pairs, as the fruits of Umbelliferae; (2) divided into two lobes; **~ An'thers**, when the two lobes are almost destitute of connective.

**Didyna'mia** (δίς, twice, δύναμις, power), a Linnean class marked by didynamous flowers; **didyna'mian** **didyn'amous**, four-stamened flower, with stamens in pairs, two long, two short, as in most Labiatae. **Didy'namy**, the condition above defined.

**diae'cious** = DIOECIOUS.

**Dieres'ilis**, **Dieresil'ia** (διαιρέω, I divide), Mirbel's name for CARCERULE; adj. **dieresil'ian.**

**Differentia'tion**, of Cell-wall, the arising of apparent layers; ~ of Tissues, their development into permanent tissue and consequent diverse growth.

**diff'luent** (*diffluens*, dissolving), having the power to dissolve, or readily doing so.

**difformed'**, *difform'is* (δίς, apart, *forma*, shape), of unusual formation or shape; **Difform'itas** (Lat.), an abnormality.

**diffract'**, *diffrac'tus* (Lat., broken), broken into areolae separated by chinks.

**diffuse'**, *diffu'sus* (Lat., spread abroad), widely or loosely spreading; **~ Col'our**, a colour which has "run" into the surrounding tissues; **Diffu'sion**, (1) term used by Weisner for the intermingling of different gases under equal pressure, with or without intervening partitions; (2) mixture of fluids, or dispersion of a fluid through a solid or tissue.

**dig'amous**, *-us* (δίς, twice, γάμος, marriage), having the two sexes in the same cluster; as in Compositae.

**dig'enous** (δίς, two, γένος, offspring), containing both sexes, or produced sexually; **digenet'ic**, sexual.

**Digest'ive Pock'et** (or **Sac**), an investment of the secondary rootlets, which penetrate the tissues of the primary root till they reach the exterior.

**Dig'italine**, an alkaloid contained in *Digitalis purpurea*, Linn.

**dig'itate**, *digita'tus* (*digitus*, a finger), fingered; a compound leaf in which all the leaflets are borne on the apex of the petiole, as in the Horse-Chestnut; **~ pin'nate**, when the leaflets of a digitate leaf are pinnate; **digita'tely**, in a digitate manner; **digitaliform'is** (*forma*, shape), shaped like a finger, as the corolla of the Foxglove; **digitiner'vius** (*nervis*, a nerve), when the secondary nerves of a leaf diverge

from the summit of the main petiole, straight ribbed; **Dig'itus**, a measure of about 3 inches in length, or 8 cm.; **digita'lis**, a finger-length.

**dig'onous** (*δὶς*, two, *γωνία*, an angle), two-angled, as the stems of some cacti (Crozier); **Digyn'ia** (*γυνὴ*, a woman), a Linnean class, with a gynaecium of two pistils; **digyn'ian, dig'ynous**, with two separated styles or carpels.

**dilacera'tus** ‡ (Lat.), torn asunder, lacerated.

**Dilamina'tion** (*dis*, apart, *lamina*, a thin plate), the separation of a layer from a petal, like or unlike it in form; chorisis.

**dila'ted**, *dila'tus* (Lat., widened), expanding into a blade, as though flattened, like the filaments of *Ornithogalum*.

**dilep'idus** ‡ (*δὶς*, two, *λεπὶς*, *λεπίδος*, scale), consisting of two scales.

**dilu'tus** (Lat. thinned) of a pale tint.

**dimer'ic, dim'erous**, *-rus* (*δὶς*, two, *μερὸς*, a share), with two members in each part or circle.

**dimid'iate**, *dimidia'tus* (Lat., halved), (1) halved, as when half an organ is so much smaller than the other, as to seem wanting; (2) used of the calyptra of Mosses when split on one side by the growth of the theca; **dimidia'to-corda'tus**, when the larger half of a dimidiate leaf is cordate.

**dimorph'ic, dimorph'ous** (*δὶς*, twice, *μορφὴ*, shape), occurring under two forms; **Dimorph'ism**, the state of presenting two forms, as long or short-styled flowers in the same species.

**dimo'tus** (Lat., separated), somewhat remote from.

**Diodang'ium** (*δίοδος*, a passage, *ἀγγεῖον*, a vessel), Van Tieghem's term for sporangium in Vascular Cryptogams and Bryophytes.

**Di'ode** (*δίοδος*, a passage), Van Tieghem's term for a reproductive body peculiar to vascular plants which develops into a rudimentary body or prothallium, the transition between the rudimentary and adult stages; *cf.* ISODIODY, HETERODIODY; **Di'odogone** (*γονὴ*, offspring), Van Tieghem's term for a sporangium which produces diodes in Phanerogams, the embryo sac and pollen sac; **Di'odophytes** (*φυτὸν*, a plant), vascular plants (Van Tieghem).

**Dioe'cia** (*δὶς*, two, *οἶκος*, a house), a Linnean class of plants with unisexual flowers; **dioec'ian, dioec'ious**, unisexual, the male and female elements in different individuals; **dioec'io-dimorph'ous**, heterogonous; **dioec'io - polyg'amous**, when some individuals bear unisexual flowers, and others hermaphrodite ones; **Dioec'ism**, the condition of being dioecious; **dioi'cous**, a spelling used by bryologists for DIOECIOUS, the male and female organs on separate plants.

**dioph'anus** = DIAPHANOUS.

**Di'osmose**, *Diosmo'sis* (*διὰ*, through, *ὠσμὸς*, a pushing), the transfusion of liquid through membrane.

**dipet'alous**, *-us* (*δὶς*, two, *πέταλον*, a flower-leaf), having two petals; **diphyll'ous**, *-us* (*φύλλον*, a leaf), having two leaves; **diplanet'ic** (*πλάνος*, roaming), relating to DIPLANETISM; **Diplan'etism**, double-swarming; in certain genera allied to *Saprolegnia* the zoospores escape from their sporangium destitute of cilia, come to rest in a cluster each forming a cell-wall, and after some hours the protoplasmic contents of each spore escapes, acquires cilia and active movement.

**Diplecolo'beae** (*δὶς*, twice, *πλέκω*, I fold, *λοβὸς*, a lobe), a sub-order of Cruciferae, the incurved cotyledons being twice folded transversely; **Dipleurogen'esis** (*πλευρὰ*, the side, *γένεσις*, beginning), term used by L. H. Bailey for Bilaterality, as the type of animals; *cf.* CENTROGENESIS.

**diplo** (*διπλόος*, twofold), in composition = duplo.

**Diplobacill'us** (*διπλόος*, twofold, + BACILLUS), bacilli which are composed of two cells, or adhere in pairs; **Diplobacte'ria** ( = DIPLOBACILLUS); **diplocaulesc'ens** (*caulescens*, stem-producng), having axes of the second order; **Diplococ'cus** (+COCCUS), a coupled spherule or result of the conjugation of two cells; **diplochlamyd'eous** (*χλαμύς*, a cloak) = dichlamydeous; having a double perianth.

**Dip'loë** (*διπλόη*, doubling), Link's term for MESOPHYLL.

**Diplogen'esis** (*διπλόος*, twofold, *γένεσις*, a beginning), doubling of parts normally single; **Diploperisto'mi** (+PERISTOMA), with double peristome, applied to Mosses; **diploste'monous** (*στήμων*, a stamen), with stamens in two whorls, those of the outer whorl alternating with the petals, the inner whorl alternating with the last; **Diploste'mony**, stamens as just described; **diplos'tic**, Van Tieghem's term for rootlets when the mother-root has only two xylem bundles; **Diplote'gia**, *-gis*, *-gium* (*τέγος*, a covering), a capsule or other dry fruit, invested with an adnate calyx; an inferior capsule; **diploxyl'ic** (*ξύλον*, wood), used of vascular bundles in which the centrifugal part of the wood is secondary.

**Dip'tero-cecid'ia** (*δίς*, two, *πτερόν*, a wing, *κηκίς*, a gall), galls produced by dipterous flies; **dip'terous**, *-us*, two-winged, having two wing-like processes; **dipyre'nus** (*πυρήν*, fruit-stone), containing two stones.

**Direc'tion Cells**, ~ **Corpus'cles**, synonyms of POLAR CELLS;

**Direct'-Metamorph'osis**, the same as PROGRESSIVE METAMORPHOSIS; ~ **Superposit'ion**, the situation of accessory buds in an axil above the leading bud or that first formed (Crozier); **direc'te-veno'sus**, a feather-veined leaf, where secondary ribs (primary veins) pass direct from mid-rib to margin, digitinervius; **direct'ing Leu'cite**, = TINOLEUCITE; **direct'ive Spheres**, = ATTRACTIVE SPHERES.

**Direm'ption**, *Diremptio* (Lat., a separation), the occasional separation or displacement of leaves.

**diri'noid**, resembling the apothecium of the genus *Dirina*.

**disappear'ing**, branching in extreme.

**disartic'ulate** (*dis*, apart, *articulus*, a joint), to separate at a joint, as the leaves in autumn.

**Disc**, or **Disk** (*disc'us*, a quoit), (1) development of the torus within the calyx or within the corolla and stamens; (2) the central part of a capitulum in Compositae as opposed to the Ray; (3) the face of any organ, in contradistinction to the margin; (4) certain markings in cell-walls, of circular outline; bordered pits; (5) the valves of diatoms when circular; (6) the base of a pollinium;—**adhe'sive** ~, modified tendrils, as in *Vitis heterophylla*, Thunb., *Ercilla*, etc.; **dis'cifer** (Lat.), **discife'rous** (*fero*, I bear), disc-bearing, as the wood of conifers; **dis'ciform**, *disciform'is* (*forma*, shape), flat and circular, orbicular; **discig'erous** (*gero*, I bear), disc-bearing; ~ **Frus'tules**, in Diatoms those having valves more or less circular in outline; **Dis'cocarp** (*καρπός*, fruit), an ascocarp in which the hymenium lies exposed whilst the asci are maturing; an apothecium; **Discocarp'ium**, a collection of fruits within a hollow receptacle, as in many Rosaceae.

**disc'oid** *discoi'deus* (*δίσκος*, a quoit, *εἶδος*, like), with a round thickened lamina, and rounded margins; ~ **Flow'ers**, those belonging to the disk, usually tubular florets; ~ **Marking**, see DISC, 5; **disco'idal**, *discoida'lis*, orbicular; **Discoli'chenes** (+ Lichenes), Wainio's term for DISCOMYCETOUS LICHENS.

**dis'color** (Lat. of different colours), used when the two surfaces of a leaf are unlike in colour.

**Discopod'ium** (*δίσκος*, a quoit, *πούς*, *ποδός*, a foot), a disc-shaped floral

receptacle; **disc'ous**, the same as discoid (Crozier).

**discrete'**, *discre'tus* (Lat., parted), separate, not coalescent.

**Disc'us** (Lat. from δίσκος), see DISC; **Disc'ulus** (dim. of *Discus*), the adventitious lobule of Hepaticae (Spruce); **disc'al**, word used by J. Smith to express "on the surface of the frond, superficial."

**disep'alous**, *-us* (δίς, two + SEPALUM), of two sepals.

**Disjunc'tion** (*disjunctio*, separation) see DIALYSIS, FISSION, SOLUTION, varying degrees of separation in organs; **Disjunc'tor**, Woronin's term for a spindle-shaped cellulose connection between the gonidia in certain Fungi; the developed septum, as in *Sclerotinia Vaccinii*, Woron.

**Disk**, see DISC. Disk is the more usual spelling in the case of Compositae, as ~ **Flor'ets**, ~ **Flow'ers**, those occurring on the central portion of the capitulum of compositae, not of the ray (or margin); ~ **shaped** = DISCOID.

**Disloca'tion** (*dis*, apart, *locus*, a place) = DISPLACEMENT; **disoperc'ulate** (*operculum*, a lid), deprived of the cover or lid.

**disperm'ous** (δίς, double, σπέρμα, a seed), two-seeded.

**Disper'sal**, **Dispers'ion** (*dispersus*, scattered), the various ways by which seeds are scattered, by wind, birds, adhesion to animals, etc.; in Germ., Verbreitungsmittel.

**Dispi'rem** (δίς, two, + SPIREM) a stage in nuclear division, as in *Psilotum triquetrum*, Sw. which follows the Dyaster (Rosen).

**dispi'rous** (δίς, double, σπεῖρα, a coil), Spruce's term for the elaters of Hepaticae which have double spirals.

**Displa'cement**, the abnormal situation of an organ; diremption.

**Disposit'io** (Lat., arrangement), the manner in which parts are arranged, as "disp. $\frac{3}{8}$" indicates that phyllotactic system.

**dissect'ed**, *dissect'us* (Lat., cut up), deeply divided, or cut into many segments.

**Dissemina'tion** (*disseminatio*, sowing), the contrivances by which ripe seeds are shed by the parent plant; in Germ., Aussaet.

**Dissep'iment**, *Dissepiment'um* (Lat., a partition), a partition in an ovary or pericarp, caused by the adhesion of the sides of carpellary leaves; **spu'rious** ~, a partition not having that origin.

**dissil'ient**, *dissil'iens* (Lat., flying apart), bursting asunder.

**dissim'ilar** (*dissimilis*, unlike), when similar organs assume different forms in the same individual, as the anthers of *Cassia*.

**Dissocia'tion** (*dissociatio*, separation), separation.

**dist'ad** = **dis'tal** (*disto*, I stand apart), remote from the place of attachment; the converse of proximal; **dist'ant**, *distans*, when similar parts are not closely aggregated, in opposition to approximate.

**Disten'sion** (*distensus*, stretched out), swollen or bulging.

**Disteleol'ogy**, defined by Haeckel as purposelessness; for botanic usage see DYSTELEOLOGY.

**dist'ichous**, *-us* (δίστιχος, of two rows), disposed in two vertical ranks, as the florets in many grasses.

**dist'inct**, *distinct'us* (Lat., separate), separate from, not united.

**distrac'tile**, *distracti'lis* (*distractus*, pulled two ways), borne widely apart, as the anther-lobes in *Salvia*.

**dithe'cal** (δίς, two, θήκη, a case), **dithe'cous**, *dithe'cus*, of two cells, as most anthers; **ditrichot'omous** (τριχῆ, threefold, τόμη, a cutting), doubly or trebly divided.

**diur'nal**, *diur'nus* (Lat., daily), occurring in the day-time, sometimes used for ephemeral; ~ **Sleep**, = PARAHELIOTROPISM.

**divar'icate**, *divarica'tus* (Lat., spread asunder), extremely divergent.

**Diverg'ence** (*divergium*, turning in different directions), used when

parts gradually separate as they lengthen, as the follicles in *Asclepias*; **Angle of ~**, the angle between succeeding organs in the same spiral or whorl; **diver'gent**, *-ens*, **diverg'ing**, separating by degrees; **diverginer'vius** (*nervus*, a nerve), with radiating main nerves.

**diversiflor'ous**, *-rus* (*diversus*, contrary, *flos*, *floris*, a flower), with flowers of more than one kind; **diver'sus**, (1) variable (de Candolle); (2) different or separate.

**Divertic'ulum** (Lat., a byeway), in Algae, a protoplasmic protrusion, communicating with the fused procarp cells and the placenta, as in *Gracilaria confervoides*, Grev.

**divi'ded**, *divi'sus* (parted asunder), used where lobing or segmentation extends to the base; **divisu'ral** (line), the line down the teeth of the peristome of a Moss, by which the teeth split.

**Dix'eny** (*δίς*, two, *ξένος*, a host), where an autoecious parasite may infest two species, but does not need a change of host to ensure its development (De Bary).

**Dodecagyn'ia** (*δώδεκα*, twelve, *γυνή*, woman), a Linnean order of plants with twelve pistils; **dodecag'ynous**, *-nus*, possessing twelve pistils or distinct carpels; **dodecam'erous**, *-rus* (*μερός*, a share), in twelve parts, as in a cycle; **Dodecan'dria** (*ἀνήρ*, *ἀνδρός*, a man), a Linnean class of plants with twelve stamens; **dodecan'drian, dodecan'drous**, *-drus*, of twelve stamens, normally (occasionally extended to nineteen); **dodecapet'alous** (*πέταλον*, a flower-leaf), with twelve petals, or less than twenty; **dodecari'nus** (*ἄρρην*, male), Necker's equivalent for dodecandrous.

**Do'drans** (Lat., a span), a full span, from thumb tip to extremity of the little finger, about nine inches, or 23 cm.; **dodranta'lis**, a span long.

**dolabra'tus** (Lat.), axed, or axe-shaped; **dolab'riform**, *dolabriform'is* (forma, shaped), hatchet-shaped.

**doleiform'is** (*dolea*, casks, *forma*, shape), barrel-shaped.

**dolia'rius**, *dolia'tus* (Lat.), circinate.

**Dolichone'ma** (*δολίχος*, long, *νῆμα*, a thread), the stage in nuclear division which immediately precedes synapsis in the formation of the reproductive cells; **Dolicho'sis**, retardation of growth in length (Czapek); **Dolicho'tmema**, (*τμῆμα*, free), a filiform cell which ruptures and sets free the gemma of a Moss (Correns).

**Doma'tia** (*δωμάτιον*, a little house), modified protections for shelter-parasites (Tubeuf).

**domestica'ted**, thriving under cultivation (Crozier).

**dor'mant** (*dormiens*, sleeping), applied to parts which are not in active life, as **~ Buds**, **~ Eyes**, potential buds which normally do not shoot but are excited to growth by special circumstances; **~ State**, the condition of a plant during the winter, or when inactive from any reason.

**dor'sal**, *dorsa'lis* (*dorsum*, the back), relating to the back, or attached thereto; the surface turned away from the axis, which in the case of a leaf is the lower surface (NOTE.—This is reversed by some authors); **~ Su'ture**, the suture of a follicle or legume which is exterior to the axis; the midrib of a carpel; **dorsicum'bent** (*cumbens*, lying down) = SUPINE (Crozier); **dorsif'erous** (*fero*, I bear), borne on the back, as the sori on most Ferns; **dor'sifixed, dorsifix'us** (*fixus*), fast), fixed on the back or by the back; **dorsiven'tral** (*venter*, the belly), used of an organ which has dorsal and ventral surfaces, as a leaf; **Dorsiventral'ity**, the condition of possessing upper and lower faces of an organ; **Dor'sum** (Lat.), (1) the back, or parts of the flower which look to the outside; (2) in Diatoms, in forms which are more or less lunately curved, the convex side of the girdle.

**Dots** (1) receptacles of oil in the leaves; (2) pits in the cell-wall; **dotted**, punctured with dots; ~ **Ducts**, vessels with pit-like markings on the walls; ~ **Tis'sue** = BOTHRENCHYMA.

**doub'le**, *du'plex* (1) twice; (2) used of flowers when the petals are monstrously increased at the expense of other organs, especially the stamens; ~ **bear'ing**, producing a crop twice in the same season; **Doub'ling**, the same as chorisis; **doub'ly**, something repeated, as ~ **toothed**, the teeth themselves being toothed.

**Down** (1) soft pubescence; (2) the pappus of such plants as thistles; **down'y**, pubescent, with fine soft hairs.

**Dra'canth** (*draganthum*, Mid. Lat.), a synonym of Gum Tragacanth.

**Draco'nine**, a red resinous substance from "Dragon's Blood," produced by *Daemonorops Draco*, Blume, and *Dracaena Draco*, Linn.

**drawn**, applied to attenuated shoots, diminished and etiolated, often increased in length.

**drep'aniform** (δρέπανον, a sickle, *forma*, shape), falcate (Crozier); **Drepa'nium**, a sickle-shaped cyme.

**Drip-point**, **Drip-tip**, the acuminate apex of a leaf, from whose point water soon drips; Germ. Träufelspitze.

**droop'ing**, inclining downwards, cernuous, but not quite pendent.

**Drop'per**, the young bulb of a tulip, not of flowering size.

**Drop'ping-point** = DRIP-POINT.

**drupa'ceous** (*drupa*, an olive, + aceous), resembling a DRUPE, possessing its character, or producing similar fruit; **Drupe**, *Dru'pa*, a stone-fruit such as a plum;—**Spu'rious** ~, any fleshy body enclosing a stone; **Dru'pel**, **Dru'pelet**, *Drupe'ola*, a diminutive drupe, the fruit of the Blackberry is an aggregation of these; **Drupe'tum**, a cluster of drupes; **Dru'pose**, a constituent of the stone-cells of the flesh of pears (Cross and Bevan).

**Dry-rot**, destruction of timber in houses by *Merulius lacrymans*, Fr.

**du'bious**, *du'bius* (Lat.), doubtful, used for plants whose structure or affinities are uncertain.

**Duct**, *Duct'us* (Lat., led, conducted), an elongated cell or tubular vessel, especially occurring in the fibro-vascular portions of plants; **an'nular** ~, the secondary thickenings occurring more or less in the form of rings; **closed** ~, long cells, not continuous, but with the intervening septa remaining; **dot'ted** ~, = BOTHRENCHYMA; **intercel'lular** ~, passages between the cells; **retic'ulated** ~, where the markings seem to form a network; **scalar'iform** ~ with ladder-like markings as in Ferns.

**dul'cis** (Lat.), sweet, extended to any kind of taste which is not acrid; **Dul'cite**, a crystalline substance from *Melampyrum*, also found in Madagascar Manna.

**du'metose**, *dumeto'sus* (*dumetum*, a thicket), bushy, relating to bushes; **Dume'tum**, a thicket.

**dumose'** (*dumo'sus*, bushy), full of bushes, of shrubby aspect; **Du'mus** (Lat.), a bush.

**duode'ni** (Lat.), by twelves, growing by twelves.

**du'plex** (Lat.), double; **du'plicate**, *duplica'tus*, doubled or folded, twin; **Duplica'tion**, doubling, CHORISIS; **duplica'to-crena'tus**, doubly crenate; ~ **denta'tus**, doubly-toothed; ~ **pinna'tus**, bipinnate; ~ **serra'tus**, doubly-serrate; ~ **terna'tus**, biternate; **duplo** = twice as many, in Greek compounds it is **diplo**.

**Dura'men** (Lat., a hardened vine branch), the heartwood of an exogenous stem, which has become hardened by deposits.

**Dust**, Blair's word for Pollen; **dust'y**, covered with granulations resembling dust; or powdered, farinose.

**dwarf**, of small size or height compared with its allies; ~ **Male**, a short lived filament of a few cells, in Oedogoniaceae, the upper cells being antheridia.

**Dyas'ter** (*δύο*, double, *ἀστὴρ*, a star), the stage of nuclear division when the rays of linin split longitudinally and two stars are formed which move apart, ending with the formation of daughter-skeins; **dyblas'tus** (*βλαστὸς*, a bud), two-celled, applied to Lichen spores; **Dycle'sium**, or **Dyclo'sium**, see DICLESIUM.

**dynam'ic** (*δύναμις*, power), applied to tissue which is capable of strongly swelling on one side; **Dy'namis**, used by Linnaeus to express the degree of development of stamens, as Didynamia, and Tetradynamia, applied to flowers where respectively two and four stamens have longer filaments than the remaining two.

**dyploste'monous** = DIPLOSTEMONOUS.

**dyploste'gia** = DIPLOSTEGIA.

**dysgeog'enous** (*δυσ*, i.e. bad, *γῆ*, the earth, *γεννάω*, I bring forth), employed by Thurmann for those plants growing on soils which do not readily yield detritus, hard rocks generally, such as granite; **Dysteleol'ogy** (*τέλος*, completion, *λόγος*, discourse), frustration of function; as where an insect obtains honey by puncturing a nectary instead of by the floral opening; adj., **dysteleolog'ic**, ~**cal**; **Dysteleol'ogist**, an agent which evades the teleologic end, as a bee which obtains honey by means which do not conduce to fertilization.

**e-**, **ex**, in Latin compounds, privative, as **ecostate**, without ribs.

**Ear**, the spike of corn; **ear-formed**, (Loudon), **eared**, auriculate.

**ebe'neous**, black as ebony, the heartwood of *Diospyros Ebenum*, Koen.

**ebeta'tus** = HEBETATUS.

**ebori'nus** (*eboreus*, made of ivory), ivory-like, or ivory-white.

**ebrac'teate**, *ebractea'tus*, (*e*, priv. *bractea*, a bract), without bracts; **ebrac'teolate**, *ebracteola'tus*, destitute of bracteoles.

**eburn'eous**, *-eus* (Lat. of ivory), ivory white, white more or less tinged with yellow.

**ecalc'arate**, *ecalcara'tus* (*e*, priv., *calcar*, a spur), spurless; **ecaud'al** (*cauda*, a tail), without a tail or similar appendage.

**Ecblaste'sis** (*ἐκ*, out of, *βλάστη*, growth), the appearance of buds within a flower, prolification of the inflorescence.

**eccen'tric** = EXCENTRIC.

**echlor'ophyllose** (*e*, priv., + CHLOROPHYLL), without chlorophyll; scarious; **ech'inate**, *echina'tus* (Lat., prickly), beset with prickles; **echin'ulate**, *echinula'tus*, having diminutive prickles.

**Ecid'ium** (Crozier) = AECIDIUM.

**Ech'ma**, pl. **Ech'mata** (*ἔχμα*, a support), the hardened hook-shaped funicle in most Acanthaceae which supports the seed; *cf.* RETINACULUM (3).

**Ecol'ogy**, etc., see OECOLOGY.

**Econom'ic** Botany (*οἶκος*, a house, *νομικός*, resting on laws), applied botany, that branch which takes note of technical application of plants and plant-products.

**ecort'icate**, *ecortica'tus* (*e*, priv., *cortec*, bark), destitute of bark, or bark-like covering; **ecos'tate**, *ecosta'tus* (*costa*, a rib), without ribs, nerveless; **ecrusta'ceous** (*crusta*, rind, + aceous), destitute of thallus, applied to Lichens.

**ectogen'ic** (*ἐκτὸς*, outside, *γένος*, offspring), capable of living outside of a given body, as certain bacilli; **Ectopar'asite** (+ PARASITE), a parasite which remains on the exterior of its host, only sending its haustoria within; opposed to ENDOPARASITE; **ectophloeo'des** (*φλοιὸς* bark), living on the surface or bark of other plants as some Lichens; **Ect'oplasm** (*πλάσμα*, moulded), a delicate, firm, superficial layer of the cytoplasm or general protoplasm of the cell,

hyaloplasm; **Ect'ospore** (*σπορά*, seed), a synonym of BASIDIOSPORE; **ectos'porous**, possessing exogenously formed spores; **ectothe'cal** (*θήκη*, a case), in Ascomycetes used for naked-spored; **ectotroph'ic** (*τροφή*, nourishment), when a fungus clothes a root only externally; **ectotrop'ic** (*τρόπος*, direction), outward curvature.

**ecy'phellate** (*e*, priv. + CYPHELLA), used of Lichens destitute of cyphellae; **edent'ate**, *edenta'tus* (*dens*, *dentis*, a tooth), without teeth; **edent'ulus** (Lat.), toothless.

**Ed'estin**, (*ἐδεστός*, eatable), a globulin constituent of wheat flour, forming about six to seven per cent.

**Edge**, the margin or outline, as of a leaf; **edged**, when a patch of colour is rimmed round by another tint.

**effete'**, *effe'tus*, *effoe'tus* (Lat., exhausted), past bearing, functionless from age.

**effig'urate**, *effigura'tus* (*figura*, a figure), (1) when an organ is completed by the full development of its subordinate parts; (2) of definite outline, opposed to EFFUSE; **Effigura'tions**, outgrowths of the receptacle or torus as in *Passiflora*, *Capparis*, etc.

**Efflores'cence**, *Efflorescen'tia* (*effloresco*, I blossom forth), the season of flowering, anthesis.

**Effolia'tion** (Lindley) = EXFOLIATION.

**effuse'**, *effu'sus* (Lat., poured out), patulous, expanded; **Effu'sio**, an expansion; **Effu'sion**, used by Wiesner for an intermingling of gases under different pressures, the current acting through openings in membranes.

**efo'liate**, *efoliola'tus* (*e*, priv. *foliolum*, a small leaf), without leaf-like scales or squamæ; **efo'liolose** has the same meaning; **eful'crate**, **efulcra'tus** (*fulcrum*, a bed-post), used of buds from which the customary leaf has fallen.

**Egg** (1) Ovum, ovule; (2) restricted in meaning as below; ~ **Appara'tus**, the three cells with nuclei at the micropylar end of the embryo sac, two form the synergidæ, and the other forms the oösphere; ~ **Cell**, the oösphere or gynogamete; ~ **shaped**, = OVATE; ~ **Spore** = OÖSPORE.

**eglan'dulose**, *eglandulo'sus* (*e*, priv. *glandula*, a gland), destitute of glands; **egran'ulose** (*granula*, a small grain), without granules.

**E'gret**, Martyn's term for pappus; Fr. Aigrette.

**ehila'tus** ‡ (*e*, priv., + HILUM), imperforate, applied to pollen grains having no perforations.

**eis'odal**, **eiso'dial** (*εἴσοδος*, an entry), anterior, as the outer pore of stomates (Tschirch).

**Ejacula'tion** (*ejaculor*, I shoot forth) = EJECTION.

**Ejec'tion** (*ejectio*, casting forth), forcibly throwing out endogenously formed spores from a sporangium.

**Elabora'tion** (*elaboratio*, persevering labour), used of the changes which take place after the absorption of food material to fit it for the use of the plant.

**elaeo'des** (*ἐλαία*, olive), olive colour, brownish green; **Elaioleu'cites** (*λευκός*, white), Van Tieghem's term for ELAIOPLASTS; **Elai'oplasts** (*πλαστός*, moulded), plastids which are believed to form oil, as leucoplasts form starch; **Elai'ospheres** (*σφαῖρα*, a sphere), bodies in spongy and palisade parenchyma, similar to elaioplasts, probably oil-bodies (Lidforss). The foregoing are also spelled **elaeo-**.

**elaphi'nes**, (*ἐλαφινῆς*, a fawn); *elaphi'nus* (*ἔλαφος*, a deer), tawny or fulvous.

**Ela'ter** (*ἐλατήρ*, a driver); (1) an elastic spirally twisted filament, occurring amongst the spores in the thecæ of Hepaticæ; (2) a free capillitium thread in Myxogastres; (3) in *Equisetum*, four clubbed hygroscopic bands attached to the spores, which serve for dispersal.

**Elat'erine**, the active principle of the fruit of *Elaterium*, Jacq.

**Elate'rium** (*ἐλατήριος*, driving away) = COCCUM.

**ela'tus** (Lat., exalted), tall, lofty.

**electri'nus** (*ἤλεκτρον*, amber), yellowish amber coloured; **Electrol'ysis** (*λύσις*, a loosing), analysis by electric force, adj. **electrolyt'ic**; **electrotrop'ic** (*τρόπος*, direction), actuated by electric force; **Elec'tropism**, the electric impulse which governs certain plant-functions.

**Element'ary Or'gans**, the constituents of cellular and vascular tissue.

**eleutheran'therous** (*ἐλεύθερος*, free, + ANTHER), having the anthers distinct, not united; **eleutheropet'alous** (*πέταλον*, a flower-leaf), polypetalous, having free petals, choripetalous; **eleutherophyll'ous** (*φύλλον*, a leaf), separate leaved; **eleutherosep'alous** (+ SEPALUM) with distinct sepals.

**eleva'ted**, applied to a Lichen when raised above the surface of its matrix.

**Ell**, a measure variously understood, the English ell being 45 inches, the French ell 54 inches.

**Elleb'orin**, an acrid resin from *Eranthis hyemalis*, Salisb. formerly considered a species of *Helleborus*.

**ellip'soid, ellipsoi'dal**, *ellipsoida'lis* (*ἔλλειψις*, a falling short, *εἶδος*, like), an elliptic solid, sometimes employed for elliptic; **ellip'tic, ellip'tical**, *ellip'ticus*, shaped like an ellipse, oblong with regularly rounded ends.

**Elitric'ulus** = ELYTRICULUS.

**eloc'ular**, *elocula'ris* (*e*, priv. *loculus*, a cell), unilocular.

**Elonga'tion**, *Elonga'tio* (*elongo*, I lengthen), remarkable for length in comparison with its breadth; **elonga'ted**, *elonga'tus* (drawn out in length).

**Elytric'ulus** (*ἔλυτρον*, a covering), Necker's term for a floret in Compositae; **ely'triform** (*forma*, shape), resembling the wing-case of a beetle (Crozier).

**emar'cid**, *emar'cidus* (*emarcesco*, I wither), flaccid, withered.

**emar'ginate** *emargina'tus* (*emargino*, to deprive of its edge), having a notch cut out, usually at the extremity; **Emarginatu'ra** (Lat.), the notch at the apex of an emarginate leaf.

**Em'bolus** (*ἔμβολος*, a pump piston), a plug, a process which projects downwards from the upper part of the cavity of the ovary of *Armeria*, and closes the foramen of the ovule.

**emboss'ed**, umbonate, having a slight central nodule.

**embra'cing**, clasping by the base, amplectant.

**Em'bryo**, *Em'bryon* (*ἔμβρυον*, a foetus), the rudimentary plant formed in a seed or within the archegonium of Cryptogams; ~ **Buds**, "spheroidal solid bodies, of unknown origin, resembling woody nodules formed in the bark of trees, and capable of extending into branches" (Lindley); ~ **Cell** = Oösphere; ~ **Nod'ule**, the same as EMBRYO BUDS; ~ **Sac**, the cell in the ovule in which the embryo is formed, also by some termed the macrospore; **fixed** ~, a leaf-bud; **embryogen'ic** (*γεννάω*, I bring forth), belonging to the development of the embryo; ~ **Bod'ies**, in Mucorini, naked masses of protoplasm apparently derived from the nuclei, at each end of the zygospore, ultimately fusing together, becoming ~ **Spheres**, then surround themselves with a double cell-wall, and finally become EMBRYONIC SPHERES (Léger); **Embryog'eny**, formation of the embryo; **direct** ~, when a spore gives rise to an embryo resembling the adult form; **heteroblast'ic** ~, when the embryo differs widely from the adult form it is not borne direct, but as a lateral outgrowth; **holoblastic** ~, in which the whole of the ovum takes part; **homoblast'ic** ~, = DIRECT ~; **indirect** ~ = HETEROBLASTIC ~; **meroblast'ic**, when only a portion of the ovum takes part in the development; **embry'o-**

**nal**, *embryona'lis*, relating to the embryo; ~ **Tubes**, tubular structures which develop in Abietineae, forming the suspensor; ~ **Ve'sicle**, the oösphere; **Embryol'ogy** (λόγος, discourse), study of the embryo; **embry'onary Sac** = embryo sac; **em'bryonate**, having an embryo (Crozier); **embryon'ic**, rudimentary, in an early stage, ~ **Branches**, in *Chara*, peculiar branches resembling an embryo, which become separate and grow into new plants; ~ **Spheres**, see under EMBRYOGENIC SPHERES; **Em'bryophore** (φορέω, I carry), in *Equisetum* the homologue of the suspensor of Phanerogams and *Selaginella*, the lower of the two cells first cut off by a septum in the oösphere, then again separated, and this time forming the lower two of the quadrants, one becoming the "foot," the other the first root; **Embryophy'ta** (φυτόν, a plant), plants possessing embryos, divided into ~ **Siphonogam'ia**, having pollen-tubes, practically all flowering plants, and ~ **Zoidiogam'ia**, with ciliated spermatozoids, practically Cryptogams; **Embryote'ga, -tegum, -tegium**, *-stega* (τεγή, a covering), a callosity in the seed coat of some seeds near the hilum, and detached by the protusion of the radicle on germination; **Embryotroph'a** (τροφή, nourishment) (1) perispermium; (2) amnios (Henslow).

**Emer'gence** (*emergo*, I come forth), an outgrowth from the surface, differing from hairs in arising from more than the superficial cells, and from spines, in arising from a few layers only; prickles, warts, etc.; **emer'gent**, *emerg'ens*, used of capsules which rise slightly above the perichaetium; **emer'sed**, *emer'sus*, raised above and out of the water.

**Em'etin**, a supposed alkaloid from *Ipecacuanha* and similar emetic roots.

**Em'odin**, a glucoside obtained from buckthorn and a species of rhubarb, *Rheum Emodi*, Wall.

**empa'led**, Grew's term for hemmed in, as the flower by the calyx; **Empa'lement**, = CALYX; **Empa'lers** = calyx segments.

**empenna'tus** ‡ (Mod. Lat.), pinnate.

**emphysemato'sus** ‡ (ἐμφυσάω, I breathe upon), bladdery.

**Emph'ytism** (ἐμφύω, inhering). W. D. Cope's term for inherited or simple type of growth force; **Emphytogen'esis** (γένεσις, beginning), the origin of inherited growth force (W. D. Cope).

**Empir'ic Di'agram**, a scheme showing the relative number and position of parts of a flower as seen by inspection.

**em'pty**, void; ~ **Glumes**, one or more glumes subtending a spikelet in grasses enclosing one or more flowers.

**Emul'sin** (*emulsus*, milked), an enzyme acting upon glucosides, found plentifully in almonds.

**enantioblast'ic, -tous** (ἔναντα, opposite, βλαστός, a shoot), having the embryo at the end of the seed diametrically opposite the hilum.

**Ena'tion** (*enatus*, sprung up), having outgrowths from the surface.

**Encarp'ium** (ἐν, in, καρπός, fruit). Trattinick's term for sporophore.

**Enca'sing**, of protoplasm, the formation of cellulose-caps by the protoplasm in the cells of certain trichomes (Haberlandt); Germ., Einkapselung.

**Enchyle'ma** (ἐγχέω, I pour in, λήμη, rheum), the more fluid portion of the cytoplasm (Hanstein).

**encyst'ed** (ἐν, in, κύστις, a bladder), enclosed in a bag, or invested with a coating when in a non-motile state, as some unicellular plants. **Encyst'ment**, the condition of being encysted.

**end'arch** (ἔνδον, within, ἀρχή, beginning), applied to a bundle in which the primary xylem, in most Phanerogams is wholly centrifugal, centroxylic.

**endecag'ynous, endecagyn'ian** (*ἐνδεκάς*, eleven, *γυνή*, a woman), having eleven pistils; **endecan'drous** (*ἀνήρ, ἀνδρός*, a man), having eleven stamens; **endecaphyll'ous** (*φύλλον*, a leaf), having eleven leaves or leaflets.

**ende'mic**, *ende'micus* (*ἐν*, in, *δῆμος*, a country district), confined to a given region, as an island or country.

**En'distem** (*ἔνδον*, within, *ἵστημι*, I stand), young pith; **Endobasid'ium** (*basidium*, a little pedestal), an enclosed basidium, as in Gasteromycetes; **endobiot'ic** (*βιοτή*, life), living within as a parasite, as *Chrysophlyctis endobiotica*, Rose, in potato tubers; **En'doblem** (*βλῆμα*, a coverlet), tissue beneath the dermatogen, of small-celled parenchyma; **En'docarp** (*καρπός*, fruit), the inner layer of a pericarp; **endocarp'oid**, resembling the Lichen genus *Endocarpon*; **endocatad'romous** (+CATADROMOUS), when Ferns in their nervation have their stronger pinnules catadromous, the weaker one, anadromous; **En'dochite** (*χιτών*, a tunic), the innermost membrane of the egg in Fucaceae (Farmer); **En'dochroa** ‡ (*χρώς*, skin), a supposed interior layer of the cuticle (Lindley); **En'dochrome**, *Endochro'ma* (*χρῶμα*, colour), the peculiar colouring matter in cells, especially in Algae; **Endocor'tex** (*cortex*, bark), the innermost layer of the cortical region; **endococ'coid**, like the Lichen *Endococcus*; **En'docyst** (*κύστις*, a bladder), Cleve's term for a probably sexual organ in the frustules of certain Diatoms; **En'dodermis** (*δέρμα*, skin), the layer of ground-tissue which abuts on the stele, being differentiated as a sheath round it; **Endog'amy** (*γάμος*, marriage): an expression for fusion or coalescence of two or more female gametes, adj. **endog'amous**; **En'dogen** (*γένος*, race, off-spring), a monocotyledonous plant, supposed to grow by internal accessions; **endog'enous**, (1) pertaining to an Endogen; (2) produced within another body, arising from deep-seated tissues; ~ **Cell-forma'tion**, = free cell-formation; **Endogonid'ium** (+GONIDIUM), a gonidium formed within a receptacle or gonidangium; **Endogo'nium**, the contents of the nucule of *Chara*; **endonast'ic** (*ναστός*, close pressed), applied by Van Tieghem to an anatropous or campylotropous ovule, when the curvature is horizontal towards the edge of the carpel; **Endokaryog'amy** (*κάρυον*, a nut or kernel) = ENDOGAMY; **Endonu'cleus** (*nucleus*, a small nut) "the nucleolo-nucleus" (Macfarlane); **Endopar'asite** (+PARASITE), a plant which lives and develops within the tissues of the host; adj. **endoparasit'ic**; **Endoperid'ium** (*περίδιον*, a little pouch), the inner layer of the peridium in Fungi; **En'dophloeum** (*φλοιός*, bark) the inner bark; **Endophrag'ma** ‡ (*φράγμα*, a fence), a partition in the frond of some seaweeds; **endophyl'lous**, *endophyl'lus* (*φύλλον*, a leaf), (1) formed from within a sheathing leaf; (2) living within the substance of a leaf; **endophy'tal**, **endophyt'ic**, *-cus* (*φυτόν*, a plant), one plant growing inside another plant, whether parasitic or not; **En'dophyte**, (1) the woody body or timber of an exogen, including the pith (Lindley); (2) a plant which grows in the interior of another living plant; **En'doplasm** (*πλάσμα*, moulded), the internal granular portion of the protoplasm as distinguished from the outer portion, the ectoplasm, which is free from granules: **Endopleu'ra** (*πλευρά*, a rib), the inner seed-coat, tegmen; **endop'tile**, *endop'tilus* (*πτίλον*, a feather), used of an embryo whose plumule is rolled up in the cotyledon; **endorhi'zal**, **endorhi'zous**, *-us* (*ῥίζα*, a root), monocotyledonous, for in germination the radicle instead of lengthening gives rise to secondary rootlets;

**Endorhi'zae** = Monocotyledons; **Endosclero'tium** (+ SCLEROTIUM), a persistent tuber-like mycelium of endogenous origin (Fayod); **Endosmom'eter** (*μέτρον*, a measure), an instrument to show endosmosis; **En'dosmose**, *Endosmo'sis* (*ὠσμὸς*, impulsion), flow of liquid through a membrane into a more viscid fluid; **En'dosperm**, *Endosperm'um* (*σπέρμα*, seed), (1) the albumen of a seed in Angiosperms, by recent observers limited to the endosperm deposited within the embryo sac; (2) in Gymnosperms the prothallium within the embryo sac; (3) in *Selaginella*, tissue formed in the cavity of the macrospore below the prothallium; **endosperm'ic**, *-icus*, having albumen, or associated with it; **En'dospore**, *Endospor'ium* (*σπορὰ*, seed), (1) the innermost coat of a spore; (2) the INTINE of a pollen-grain; **endosp'orous**, *-us*, having spores formed within; **En'dostere** ‡ (*στερεὸς*, stiff), the timber of an exogen, without the pith (Lindley); **En'dostome**, *Endost'oma* (*στόμα*, the mouth), the foramen of the inner coat of an ovule; **Endothe'ca** (*θήκη*, a case), Tulasne's term for endothecium; **Endothe'cium**, (1) Purkinje's name for the inner layer of a pollen grain; (2) the inner lining of the loculus of an anther; (3) the inner tissue of the theca in Muscineae; **endotroph'ic** (*τροφὴ*, nourishment), applied to mycorhiza when the fungus attacks the cells of the root itself; **Endot'rophy**, Wiesner's expression for the condition of thickened growth of a shoot in the direction of the parent-shoot; *cf.* EXOTROPHY; **endotrop'ic** (*τροπὴ*, a turning), inward curvature; **endozo'ic** (*ζῷον*, an animal), living inside an animal; entozoic (Crozier).

**Eneile'ma** (*ἐνείλημα*, a wrapper), the inner skin of the seed.

**Energet'ics** (*ἐνεργητικὸς*, active), the science which treats of the transformation of energy.

**En'ergid** (*ἐνεργέια*, action, *ἰδης*, Greek suffix = paternity), Sachs's term for the nucleus and protoplasm as a vital unit; **En'ergy**, the capacity for doing work, as ~ of actual motion or **kinet'ic** ~; or ~ of Position or **poten'tial** ~.

**ener'vis, ener'vius** (Lat.), destitute of veins or nerves.

**English** Type of Distribution, H. C. Watson's term for those plants whose range in Great Britain is centred in England proper.

**Enlarg'ement**, a swollen or thickened condition due to increase of cellular tissue disproportionate to the woody frame wall.

**Enneagyn'ia** (*ἐννέα*, nine, *γυνὴ*, a woman), a Linnean order of plants with nine pistils; **enneagyn'ian, enneag'ynous**, having nine pistils; **Ennean'dria** (*ἀνὴρ, ἀνδρὸς*, a man), a Linnean class characterised by having nine stamens; **ennean'dricus, ennean'drous**, with nine stamens; **enneari'nus** (*ἄρρην*, male), Necker's synonym for enneandrous; **enneapet'alous** (*πέταλον*, a flower-leaf), having nine petals; **enneasep'alous** (+ SEPALUM), with nine sepals (Crozier); **enneasper'mous** (*σπέρμα*, seed), nine-seeded (Crozier).

**Enno'bling**, an old term for inarching.

**eno'dal**, *eno'dis* (Lat.), without knots or nodes.

**en'sate** (Crozier), *ensa'tus* (*ensis*, a sword), sword-shaped; **en'siform**, *ensiform'is* (*forma*, shape), sword-shaped, as the leaves of *Iris*.

**entang'led**, irregularly interlaced, as the pubescence, or fibres of some roots.

**enterophleo'des** (*ἔντερον*, intestine, *φλοιός*, bark), by Wallroth applied to Lichens which need some amount of preparation in the bark, wood, etc., by weathering, before they can thrive.

**entire'**, without toothing or division, with even margin.

**entodis'calis** (*ἐντὸς*, within, *δίσκος*, a quoit), inserted within a disk, as in the case of some stamens.

**entomog'enous** (ἔντομος = Insect, γενάω, I bring forth), used of Fungi which are parasitic on insects; **entomoph'ilous** (φιλέω, I love), applied to flowers which are fertilized by insects; **Entomoph'ilae**, plants whose flowers are fecundated by insects, especially lepidoptera; **Entomoph'ily**, the condition just described; **Entomophy'tal** (φυτόν, a plant), entomogenous.

**Entopar'asite** (ἐντός, within, παράσιτος, a parasite), a parasite living entirely within its host (Crozier); **entophy'tal** (φυτόν, a plant) = endophytal; **En'tophyte**, *Entophy'ta*, a plant which grows within other plants, as some Fungi; adj. **entophyt'ic**; **en'tozoic** (ζῶον, an animal), growing within animals, endozoic.

**En'velope**, surrounding parts, the **Flo'ral En'velopes** are the perianth or its analogues; ~ **Appara'tus**, the sporocarp in Ascomycetes exclusive of the asci, and ascigerous cells; **envel'oping** = involucrate.

**Envi'ronment** (Fr. environnement), the aggregate of surrounding conditions.

**En'zyme** (ἐν, in, ζύμη, yeast,) an unorganised or soluble ferment, as Diastase; **amylolyt'ic** ~, as Diastase, converting starch into sugar; **fat** ~, converting olein into oleic acid and glycerine; **glu'coside** ~, as Synaptase or Emulsin; **hydrolyt'ic** ~, splitting up by hydrolysis; **invert** ~, turning cane-sugar into grape-sugar; **oxidi'sing** ~, assisting in the oxidation of various substances; **proteolyt'ic** ~, decomposing proteids; **Enzymol'ysis** (λύσις, a loosing), the action of breaking up a substance by the solvent power of an enzyme.

**Eosin'ophil** (eosin, a rose-red dye from coal-tar products, φιλέω, I love), denotes any substance which become coloured by the application of eosin.

**Epan'ody** (ἐπάνοδος, return to normal), a return to a regular state from an irregular, as a peloria flower.

**epan'thous** (ἐπί, upon, ἄνθος, a flower), growing upon flowers, as certain Fungi.

**Ep'en** (Crozier) = EPENCHYMA.

**Epench'yma** (ἐπί, upon, ἔγχυμα, an infusion), Nägeli's term for fibrovascular tissue; **Epharmo'sis** (ἁρμοζω, I join together), the minute anatomy of plants applied to taxonomy; adj. **epharmot'ic**; **ephem'eral, ephem'erous**, *-us*, (ἡμέρα, day), (1) lasting for a day or less, as the corolla of *Cistus*; (2) used by Möbius as ~ polycarpic plants, which flower several generations in the same year, as *Stellaria media*, Cyr.

**epiba'sal** (ἐπί, upon, βάσις, the base), in front of the basal wall, as in the anterior half of a proëmbryo; ~ **Cell**, the upper cell of an oöspore in Bryophytes and Pteridophytes; ~ **Oc'tants**, the subsequent divisions of the ~ CELL; **Ep'iblast**, *Epiblast'us* (βλαστός, a shoot), the first and undeveloping leaf of the plumule of grasses, a rudimentary second cotyledon; **Epiblas'tanus** is a synonym; **Epiblaste'ma**, a superficial outgrowth from leaves; **Epiblaste'sis**, growth of Lichens from gonidia which develop on the parent Lichen.

**Epible'ma** (ἐπίβλημα, a cloak), (1) the extremity of the roots with its root-hairs (Schleiden), now restricted to the primary integumentary tissue of the root, apart from the root-cap; (2) an epidermis of the thickened and flattened cells (Lindley).

**epicalyc'ius** (ἐπί, upon, κάλυξ, a cup) = EPISTAMINEOUS; **Epica'lyx**, an involucre resembling an accessory calyx as in *Malva*; **Ep'icarp** (καρπός, fruit), the external layer of a pericarp; **epicarpan'thous**; *-us* (ἄνθος, a flower), **epicarp'ous, epicarp'ius**, *-icus*, superior, applied to a flower or its parts; **Ep'ichil, Ep'ichile**, *Epichil'ium* (χεῖλος, a lip), the terminal part of the labellum of an orchid when it

is distinct from the basal portion ; **Epichro'a** ‡ (*χρώς*, skin), a supposed external layer of cuticle ; **Ep'icline** (*κλίνη*, a bed), a nectary when on the receptacle of a flower ; **epicli'nal**, *epicli'nus*, seated upon the torus or receptacle ; **epicor'mic** (*κορμὸς*, a tree-trunk), (1) applied to preventitious buds which develop on the trunks of trees ; (2) used of "branches which develop on the body of a forest tree from which surrounding trees have been removed" (Crozier) ; **epicor'olline**, *epicorolla'tus* (+ COROLLA), inserted upon the corolla ; **Epicot'yl** (*κοτύλη*, hollow vessel), the young stem above the cotyledons ; **epicotyle'donary**, placed above the seed-leaves ; **Epicu'tis** (*cutis*, the skin), Fayod's term for the superficial layer of the cuticle in Agarics ; **Ep'iderm**, *Epider'mis* (*δέρμα*, skin), the true cellular skin or covering of a plant below the cuticle ; **epider'mal**, relating to the outer covering ; ~ **Tis'sue**, the tissue which makes up the epidermis ; **epider'moid** (*εἶδος*, like), belonging to or resembling the epiderm ; **epidermoi'dal Layer**, the exoderm of roots ; **Epidiphyll'um** (*δίς*, double, *φύλλον*, a leaf), Kronfeld's term for a double leaf, when the growth of the lamina has been interrupted at a particular spot ; **epigae'an**, **epigae'ous**, *epige'us* (*γῆ*, the earth), (1) growing upon the ground ; (2) on land as opposed to water ; (3) the above-ground flowers of such genera as have hypogaean flowers also, as *Krascheninikowia* ; also occurs as **epigeal**, **epige'an**, **epig'eous**, especially when used of cotyledons which spread above the surface ; **Epigen'esis** (*γένεσις*, a beginning), the theory that the embryo develops by the differentiation of new organs ; opposed to the old theory of "Evolution" or Preformation ; **epig'enous**, *epig'enus* (*γένος*, race), growing on the surface, as Fungi on leaves ; **Ep'igone**, *Epigo'nium* (*γονὴ*, offspring), (1) the cellular layer covering the young sporophore in Hepaticae ; (2) similar tissue in Mosses after formation of the capsule, frequently ruptured, the upper portion carried up as the calyptra, the lower remaining as the vaginule ; (3) the nucleus in *Chara* ; **epigynophor'ius** (*γυνὴ*, a woman, *φορέω*, I carry), placed upon a gynophore or stipe of an ovary (Lindley) ; **epig'ynous**, *-us*, on the pistil, apparently above the ovary ; **epigyn'icus**, with the calyx or corolla superior.

**epilith'ic** (*ἐπί*, upon ; *λίθος*, rock), growing on rocks as many lichens ; **epim'enus** (*μένω*, I remain), Necker's term for the perianth being superior ; **epinast'ic** (*νασστὸς*, pressed close), (1) in leaves when pressed close to the ground, or away from the axis ; (2) in organs when the ventral surface grows the fastest as in revolute vernation ; (3) when ovules are curved in a downward direction (Van Tieghem) ; **Epinas'ty**, De Vries's term for curvature produced by greater growth of the ventral surface ; **Epine'mus** (*νῆμα*, a thread), the upper part of the filament in Compositae bearing the anther ; **epiperisperm'icus** (*περὶ*, about, *σπέρμα*, seed), without perisperm or albumen (S. F. Gray) ; **Epiperid'ium** (+ PERIDIUM) = EXOPERIDIUM ; **epipet'alous**, *-us*, *epipeta'leus* (*πέταλον*, a flower-leaf), (1) borne upon the petals ; (2) placed before the petals ; **epipetre'ous** (*πέτρα*, a rock), growing on rocks, saxicole ; **Epiphlo'ëm** (*φλοιός*, bark), the outermost or corky bark ; **epiphlo'eodal**, existing in the outer bark ; **Ep'iphlosa** = EPIDERM (Lindley) ; **Ep'iphragm**, *Epiphrag'ma* (*φράγμα*, a fence), (1) a membrane which closes the opening of the theca in Mosses ; (2) a delicate membrane closing the cup-like sporophore in *Nidularia* ; **Ep'iphyll** (*φύλλον*, a leaf), the upper portion of a leaf, from which the

petiole and blade are developed; **epiphyll'ous**, *-us*, growing on leaves; **epiphyllosperm'ous** (*σπέρμα*, seed), bearing seed or the like on leaf-like organs, as the dorsiferous Ferns.

**Epiph'ysis** (*ἐπιφύω*, to grow up), protuberances round the hilum or foramen of some seeds; strophioles.

**Ep'iphyte** (*ἐπί*, upon, *φυτόν*, a plant), a plant which grows on other plants, but not parasitically; an air-plant; **epiphy'tal**, **epiphyt'ic**, relating to epiphytes; **epiphy'toid** (*εἶδος*, like), used in ~ **Par'asites**, as Loranthaceae and Santalaceae; **Ep'iphytism**, the condition of epiphytes; **epiphyto'tic**, used of wide-spreading disease in plants, as an epidemic (Crozier); **Ep'iplasm** (*πλάσμα*, moulded), protoplasm rich in glycogen, which remains in the ascus after the formation of ascospores; glycogen-mass; **Epipleu'ra** (*πλευρά*, a rib), the outer half of the diatom-girdle, belonging to the epitheca; **Epipod'ium** (*πούς*, *ποδός*, a foot), (1) the apical portion of a developing phyllopodium or longitudinal axis of a leaf; (2) ‡ a form of disk consisting of glands upon the stipe of an ovary; (3) ‡ the stalk of the disk itself (Lindley); **epipol'yarch** (*πολύς*, many, *ἀρχή*, beginning), the division of the median protoxylem in a triarch stele (Prantl); **epip'terous**, *epip'terus* (*πτερόν*, a wing), winged, especially at the summit.

**Epirrheol'ogy** (*ἐπιρρέω*, I overflow, *λόγος*, discourse), the effects of external agents on living plants.

**epirhi'zous**, *-zus* (*ἐπί*, upon, *ῥίζα*, a root), growing on roots; as certain parasites; **episep'alous** (+ SEPALUM) (1) on the sepals; (2) standing before the sepals; **Ep'isperm** (*σπέρμα*, seed), the coat or outer covering of the seed, spermoderm, perisperm; **episperm'icus**, exalbuminous; **Episporang'ium** (*σπορά*, seed, *ἀγγεῖον*, a vessel), the indusium of Ferns; **Ep'ispore**, *Epispor'ium*, an external coat or perinium formed from the periplasm round the oöspore in some Fungi and the spores of certain of the higher Cryptogams; **espispor'ic**, connected with the outer coat of a spore; **epistamina'lis** (+ STAMEN), on the stamens, as hairs.

**Epist'rophe** (*ἐπιστροφή*, turning about), the arrangement of chlorophyll granules on the upper and lower faces of the cells in diffused light; *cf.* APOSTROPHE; adj. **epistroph'ic**; ~ **Int'erval**, S. Moore's term for that range of intensity of sunlight needed to produce Epistrophe; **Epistrophiza'tion**, the condition described; **Epist'rophy**, Morren's term for the reversion of a monstrous form to the normal condition.

**epitet'rarch** (*ἐπί*, upon, + TETRARCH), when in a triarch stele, the third (median) protoxylem group is divided (Prantl); **epithall'ine** (*θαλλός*, a young shoot), growing on the thallus; **Epithall'us**, the cortical layer of Lichens, by Zukal employed for all modifications of the cortical hyphae at the margin or apex of the thallus, which serve as protection to the gonidia; **Epithe'ca** (*θήκη*, a case), the outer and larger half-frustule of Diatoms; adj. **epithe'cal**; **Epithe'cium**, the surface of the fructifying disc in Lichens; **Epithe'lium** (*θήλη*, a nipple), (1) any distinct layer of one or more cells in thickness which bounds an internal cavity; (2) ‡ = EPIDERMIS.

**Epithe'ma**, **Ep'itheme** (*ἐπίθημα*, a cover), masses of tissue in mesophyll of leaves, serving as internal hydathodes, the cells being usually devoid of chlorophyll, as in *Crassula*.

**epitri'arch** (*ἐπί*, upon, + TRIARCH), when in a triarch stele, the third (medial) protoxylem group is uppermost *i.e.* ventral (Prantl); **Epit'rophy** (*τροφή*, food), the condition when the growth of the cortex on wood is greater on the upper side of the organ; or having buds or shoots on the upper side (Wiesner);

**epit'ropous** (*τροπὴ*, a turn), denotes an anatropous ovule with its raphe averse when ascending, adverse when suspended; **Epival'va, Ep'ivalve** (*valva*, a valve), the valve belonging to the epitheca of a Diatom; **epixylo'neus** (*ξύλον*, wood); **epix'ylous** (Crozier), growing on wood, as *Hypoxylon;* **epizoa'rius** (*ζῷον*, an animal), growing on dead animals; **epizo'ic, epizo'us**, growing on living animals, parasitic or not.

**eplica'tus** (*e*, priv., *plicatus*, folded), not plaited or folded; **eprophylla'tus** (+ PROPHYLLA), without prophylla, bracteoles;—in Germ. Vorblätter; **epru'inose** (*pruinosus*, frosty), without surface farina.

**e'qual** (*æqualis*), (1) alike as to length or number, (2) in Mosses when the capsule is symmetrical; ~ **si'ded**, equal, when applied to the two sides of an organ; **e'qually-pin'nate** = abruptly pinnate, having no terminal leaflet; **e'quans** (Lat.), equalling.

**Equator'ial Plane**, the line which passes through the mother-star of the nucleus, the plane of cell-division; ~ **Plate**, the nuclear disc of Strasburger, the grouping of chromosomes at the middle of the spindle in nuclear division.

**equilat'eral**, *equilatera'lis* (*aequilateralis*), equal-sided.

**equinoct'ial**, *equinoctia'lis* (*aequinoctialis*, pertaining to the equinox), used of plants whose flowers expand and close at particular hours of the day.

**equise'tic**, pertaining to the genus *Equisetum;* **equise'tiform**, resembling the same genus as to form.

**e'quitant**, *e'quitans* (Lat. riding), folded over, as if astride; **equitati'vus** (Lat.) ‡ = equitant.

**equivalv'ular** (*aeque*, equally; *valva*, leaf of a door), having the valves of a fruit equal in size.

**Equiv'ocal** (*aequivocus*, ambiguous) **Genera'tion**, spontaneous generation.

**eradic'ulose** (*e*, priv. *radicula*, a small root), without rootlets or rhizoids; **eramo'sus** (*ramus*, a branch), unbranched.

**erect**, *erect'us* (Lat.), upright, perpendicular to the ground or its attachment; **erec'to-pat'ent** (*patens*, lying open), between spreading and erect.

**Eremacau'sis** (*ἠρέμα*, gently, *καῦσις*, burning), slow combustion or oxidation, such as long preserved seeds show, as if charred.

**Ere'moblast** (*ἐρῆμος*, solitary, *βλαστὸς*, a shoot), cells which united at first, afterwards separate themselves; **Ere'mus** ‡ a carpel apart from its sister carpels; **Eremobry'a** (*βρύω*, I grow), a division of Ferns having articulated fronds, and not adherent to the stem or rhizome.

**Ergogen'esis** (*ἔργον*, work, *γένεσις*, beginning), the exhibition of growth-energy (J. A. Ryder).

**Er'got** (Fr.), also pr. Er'got; *Claviceps purpurea*, Tul., causing "Spur" in grasses; **Ergost'erin, Ergot'ic Acid, Er'gotin**, substances occurring in the sporophore of the Ergot fungus; **Er'gotism**, the effect produced by eating bread which is ergotised; **er'gotised**, infected with Ergot.

**erianth'ous**, *-us* (*ἔριον*, wool, *ἄνθος*, a flower), woolly-flowered.

**erice'tal** (*ericetum*, Mod. Lat., a heath), H. C. Watson's term for plants which grow upon moors, such as heather, *Erica;* **ericiti'nus** (Mod. Lat.), heath-like, in shape or habit; **erico'id** (*εἶδος*, like), used of leaves which are like those of heaths.

**e'rigens** (*erigo*, I raise), used of a branch, horizontal at first, rising at the point.

**erioph'orous** (*ἔριον* wool *φορέω*, I carry), wool-bearing, densely cottony; **eriophyll'ous**, *-us* (*φύλλον*, a leaf), woolly leaved.

**Eris'ma** (*ἔρεισμα*, a buttress), Necker's term for the rhachis in grasses.

**ermin'eus** (Mod. Lat.), the colour of the fur of ermine, white, broken with yellow.

**ero'ded, ero'se,** *ero'sus* (Lat. gnawed), as though bitten or gnawed.

**erost'rate,** *erostra'tus, erost'ris* (Lat.), beakless.

**Error,** probable, see DEVIATION.

**Ersatzfaz'ern,** Sanio = SUBSTITUTE FIBRES, intermediate in form between woody fibres and parenchyma.

**erubesc'ens** (Lat. blushing), blush red.

**erucaeform'is** (*eruca,* a caterpillar, *forma,* shape), used for such Lichen spores as those of *Graphis,* which are long, septate, blunted at the extremities, and in shape suggest a short caterpillar.

**erump'ent,** *erump'ens* (Lat. breaking through), prominent as though bursting through the epidermis.

**Er'ythrism** (*ἐρυθρός,* red), a red colour in flowers usually white, the reverse of albinism; **Er'ythrophyll** (*φύλλον,* a leaf), Berzelius's term for the red colouring of leaves; **erythroph'ilous** (*φλέω,* I love), used of nuclei which take up red stains in preference to blue; **Erythrost'omum** ‡ (*στόμα,* the mouth), Desvaux's word for ETAERIO; **Er'ythrozym** (*ζύμη,* yeast), an enzyme from the root of the madder which acts on glucosides.

**-escens,** a Latin suffix = ish, thus rub-escens = redd-ish.

**es'culent** (*esculentus,* fit for eating), suitable for human food.

**Es'culin,** = AESCULIN.

**Espal'ier,** a fruit tree trained lattice-fashion, in one plane, but not attached to a wall.

**esep'tate** (*e,* priv., *septum,* a partition), destitute of septa.

**esoter'ic** (*ἐσώτερος,* inner), arising from inside the organism.

**espatha'ceus** (*e,* priv., + SPATHA, -aceus), wanting a spathe; Lindley gives the form *espatha'tus* ‡

**essen'tial** (*essentia,* the being of anything), the necessary constituent of an existing object; ~ **Char'acter,** the distinguishing note by which a form differs from its allies, diagnostic character; ~ **Or'gans,** those which are absolutely necessary, stamens and pistils.

**esti'val** = AESTIVAL; **e'stivate** = AESTIVATE; **Estiva'tion** = AESTIVATION.

**Etae'rio,** *Etairium* (*ἑταιρεία,* companionship), an aggregate fruit composed of achenes or drupes, as in *Ranunculus,* the Strawberry, and Blackberry; adj. **etairiona'ris,** *etairio'neus.*

**e'tiolated,** *etiola'tus* (Fr. etiolé, drawn out), lengthened or deprived of colour by absence of light; **Etiola'tion,** the condition of being blanched; **E'tiolin,** the yellow-colouring matter of blanched plants, chlorophyll which has not acquired its green colour (Pringsheim).

**E'tiology** = AETIOLOGY.

**etrabecula'tus** (*e,* priv., *trabecula,* a little beam), not cross-barred; when the peristome teeth of Mosses want cross-connections.

**eu-** (*εὖ,* well), in Greek compounds = true; often used in sectional names, with a restricted meaning; **euacranth'ic** (*ἄκρος,* apex, *ἄνθος,* flower), truly terminal; ~ **Flow'er,** a terminal flower which springs immediately from the apex of a shoot which has produced leaves or other lateral structures; *cf.* PSEUDACRANTHIC; **euanth'ic,** used by Delpino to denote a monothalamic flower, the reverse being PSEUDANTHIC; **Eucar'otin** (+CAROTIN), Zopf employs this to mark the yellow carotin as distinct from the red; **eucarp'ic** (*καρπός,* fruit), applied to certain Algae where part only of the body of the plant goes to form the sporangium, in contrast to HOLOCARPIC; **eucy'clic** (*κύκλος,* a circle), when flowers are composed of alternate isomerous whorls; **Eugam'ophyte** (*γάμος,* marriage, *φυτόν,* a plant), term proposed by C. Macmillan for such Cryptogams as *Oedogonium, Marchantia, Sphagnum,* "which support dependent sporophytes."

**Eu'genol**, the chief constituent of oil of cloves, obtained from *Pimenta acris*, Kostel., and other myrtaceous plants, formerly referred to *Eugenia*.

**eugeog'enous** (*εὖ*, well, *γῆ*, the earth, *γεννάω*, I bring forth), Thurmann's word to indicate rocks readily yielding detritus and the plants which grow on it; **Eunu'cleole** (+NUCLEOLE), used by Rosen for an erythrophilous nucleus; **Euisog'amy** (*γάμος*, marriage), the union of a gamete with any other similar gamete (Hartog).

**Eupato'rine**, an alkaloid occurring in *Eupatorium cannabinum*, Linn.

**Euphor'bium**, an acrid inspissated juice or resin from various species of *Euphorbia*.

**euphotomet'ric** (*εὖ*, well, *φῶς*, *φοτὸς*, light, *μέτρον*, a measure), used of leaves which place themselves so as to obtain the maximum of diffused light, as the foliage of forests (Wiesner).

**Eu'phylls** (*εὖ*, well, *φύλλον*, a leaf), true leaves, foliage leaves; **euphy'toid** (*φυτὸν*, a plant; *εἶδος*, like) **Par'asites**, are erect land plants, parasitic in habit (Johow); **eu'schist** (*σχιστὸς*, split), when a gamete is formed by successive complete divisions from the parent-cell, the Gametogonium (Hartog); **eusporang'iate** (*σπορὰ*, seed, *ἀγγεῖον*, a vessel), in Pteridophytes, possessing a sporangium, a **Eusporan'gium**, derived from a group of superficial cells; **Eusporophy'ta** (*φυτὸν*, a plant), Cryptogams defined by C. Macmillan as "self-supporting, and do not nurse the gametophytes, *e.g.* the higher mosses, the lower fernworts and club-mosses"; **Eu'stathe** ‡ (*σταθμὸς*, abode), "the external layer of a cell" (Lindley).

**Euthybas'id** (*εὐθὺς*, direct), Van Tieghem's word for those basidia which spring directly from the sporophore; *cf.* PROBASID; **Euthymorph'osis** (*μόρφωσις*, a shaping), the rapid succession of members of different form on the same stem, buds, etc., polymorphism (Caruel).

**eu'thyschist** (*εὐθὺς*, immediately, *σχιστὸς*, split), brood-division, when each nuclear division is accompanied by cell division (Hartog).

**eutrop'ic** (*εὖ*, well, *τρόπος*, direction), A. Gray's word for twining with the sun, that is, left to right, dextrorse; **Eu'tropy**, applied by M'Leod to those flowers to which only a restricted class of specialised insects can gain access.

**evalv'is, evalv'ular** (*e*, priv., *valva*, leaf of a door), destitute of valves, not opening by them.

**evanes'cent** (*evanescens*, vanishing), soon disappearing, lasting only a short time; **evaniscen'ti-veno'sus**, when the lateral veins of a leaf do not reach the margin.

**Evapora'tion** (*evaporatio*, vapourising), to pass off in vapour.

**e'ven**, without inequalities of surface; **E'venness**, absence of elevations or depressions; **evenpin'nate** = ABRUPTLY-PINNATE (Crozier); **ev'ergreen**, bearing green foliage all the year; **everlast'ing**, used of some flowers which preserve their shape and colour in drying, as species of *Gnaphalium*, *Helichrysum*, etc.

**ever'niaeform** (*forma*, shape), like the thallus of *Evernia*, a genus of Lichens; **Ever'nine**, a principle found in the same genus; **evernio'id** (*εἶδος*, like), resembling *Evernia*.

**Ever'sion** (*eversio*, an overthrowing), protrusion of organs from a cavity, turned backward or outward; **evert'ed**, turned inside out.

**ev'ident** (*evidens*, manifest), clearly visible.

**evit'tate**, *evitta'tus* (*e*, priv., *vitta*, a fillet), not having VITTAE, oil-reservoirs in the fruit of Umbelliferae.

**e'volute** (*evolvo*, I roll forth), unfolded, turned back; **Evolu'tion**, (1) the act of development; (2) the theory according to which complex

forms are considered to have been evolved from simpler ones.

**ex**, privative prefix in place of e, when a vowel follows; **exo** = outward.

**exalbu'minous**, *exalbumino'sus* (*ex*, priv., + ALBUMEN), destitute of albumen, used only of seeds when the embryo occupies the whole cavity within the testa; **ex'alate**, *exala'tus* (*alatus*, winged), wingless.

**exalta'tus** (Lat., raised high), lofty, tall.

**Exanthem'ata** (*ἐξ*, out of, *ἄνθος*, a flower), blotches on leaves, etc., as though eruptive; **Exanth'ium** ‡ bractlets of the last degree, incapable of forming axillary buds, and immediately external to the flower.

**exan'nulate** (*ex*, priv., *annulus*, a ring), used of Ferns which do not possess an elastic ring round their sporangia; **exapophysa'tus** (+ APOPHYSIS), destitute of an apophysis, or swelling below the capsule of a Moss.

**ex'arch** (*ἐξ*, out of, *ἀρχή*, origin), used of vascular bundles in which the whole primary wood is centripetal, almost the same as perixylic.

**exar'eolate**, *exareola'tus* (*ex*, priv., + AREOLATUS), not spaced out or marked into small areas; **exar'illate** (+ ARILLA), without an aril; **exar'istate**, *exarista'tus* (+ ARISTA), destitute of awns.

**exas'perate**, *exaspera'tus* (Lat., roughened), rough with hard projecting points.

**ex'cavate** (*excavatus*, hollowed out), as though dug out.

**excen'tric**, *excentric'us* (*ex*, out of, *centrum*, the centre), one-sided, out of the centre, abaxial.

**Ex'ciple**, **Ex'cipule** (Crozier), **Excip'ulum**, *Excip'ulus* (*excipula*, a basin), wart-like excrescences on the thallus of certain Lichens, which have a narrow opening; the portion of thallus which forms the rim round the base of apothecia.

**Excitabil'ity**, *Excitabil'itas* (*excitatus*, roused), the faculty of responding to external stimuli.

**excres'cent** (*excrescens*, growing out), growing in an unnatural way, as a wart or other outgrowth; **Excres'cence**, a gnaur or wart on the stem of a tree; enation.

**Excre'tion** (*ex*, out of, *cretus*, sifted), (1) the action by which any substance is rejected from the organism; (2) the thing itself excreted, as gum, resin, honey, etc.; **excur'rent**, *excur'rens* (Lat., running), (1) running through to the apex and beyond as a mucro; (2) where the stem remains central, the other parts being regularly disposed round it; ~ **Vena'tion**, in Ferns, when the veinlet is directed outwards.

**exendosperm'ous** (*ἐξ*, out, *ἔνδον*, within, *σπέρμα*, seed), used of seeds which have reserve material stored in the embryo.

**exe'sus** ‡ (Lat., eaten away), applied to a surface irregularly sculptured as though by corrosion.

**exfo'liate** (*ex*, from, *folium*, a leaf), to come away in scales or flakes, as the bark of the Plane; **Exfolia'tion**, peeling off.

**exha'lant** (*exhalo*, I exhale), breathing out, as **exhalan'tia Va'sa** ‡ imaginary vessels in the epidermis, actually the sides of confluent cells; **Exhala'tion**, the function discharged by stomata in passing off vapour.

**exig'uous**, *exig'uus* (Lat., scanty), small and narrow, mean.

**exi'lis** (Lat.), thin, meagre; lank and straight.

**exim'ius** (Lat., distinguished), excellent for size for beauty.

**exindu'siate**, *exindusia'tus* (*ex*, priv., + INDUSIATE), without an indusium, the membrane which covers the torus in Ferns.

**Ex'ine** = EXTINE.

**Ex'intine** (*ex*, out, + INTINE), the middle coat of a pollen-grain, that which is next the intine.

**Ex'istem** (*ἐξ*, out, *ἱστὸς*, a web), the "Aussenschicht" of Sanio, consist-

ing of MESISTEM "thickening ring" and PERISTEM, young cortex; it is the tissue of protomeristem which is not young pith.

**Ex'ochite** (*ἔξω*, outside, *χιτὼν*, a tunic), the outermost membrane of the egg in Fucaceae (Farmer); **Exocor'tex**, (*cortex*, bark), a special triple layer in the roots of saprophytic Orchids; **Exoderm'is** (*δέρμα*, skin), the outermost cortical layer of the adult root, answering to the hypoderma of the stem.

**Excoe'mum** (*ἐξ*, out, *οἰμάω*, I issue), a fringe or tuft of hair at the base of the glumes in some grasses (Richard); **exocatad'romous** (+ CATADROMOUS), when Ferns in their nervation have their stronger pinnules anadromous, and their weaker catadromous (Prantl); **Exog'amy** (*γάμος*, marriage), the tendency of closely allied gametes to avoid pairing; **exog'enous** *exog'enus* (*γεννάω*, I bring forth), (1) growing as the wood of Dicotyledons; (2) arising from superficial tissue; **Ex'ogens**, *Exog'enae*, plants which increase in growth by the addition of wood on the outside beneath the constantly widening bark; **Exog'ynous**, *exog'ynus* (*γυνὴ*, woman), where the style is exserted beyond the flower; **Exoisog'amy** (+ ISOGAMY), when a gamete will pair only with a similar gamete of another brood (Hartog); **exonas'tic** (*ναστὸς*, pressed close), in anatropous or campylotropous ovules when the curvature is horizontal towards the median nerve of the side of the upper face of the carpel (Van Tieghem); *cf.* ENDONASTIC; **Exoneuro'sis** (*νεῦρον*, a nerve), the separation of veins in appendicular organs, and their reappearance as teeth, spines, or bristles, as in the Barberry (Clos); **Exoperid'ium** (+ PERIDIUM), the outer layer of the peridium of such Fungi as *Lycoperdon*, which peels or flakes off on maturity; **exophyll'ous** *-us* (*φύλλον*, a leaf), not having a foliaceous sheath, with naked cotyledons; **exop'tile**, *exop'tilis* (*πτίλον*, a wing) = EXOPHYLLOUS, said of an embryo whose plumule is naked upon, or between cotyledons and not rolled up in one (Lindley); **Exorhi'zae** (*ῥιζα*, a root), = EXOGENS; **exorhi'zal**, *exorhiza'lis*, the radicle not sheathed, so the primary root in germination has no covering to pierce; **Exos'mose**, *Exosmo'sis* (*ὠσμὸς*, a thrusting), the passage through a membrane outwards from a thin to a dense fluid; **Exosclero'tes** (*σκληρὸς*, hard), sclerotia which are external to the surface of Agarics; **Ex'ospore**, *Exospor'ium* (*σπορὰ*, seed), (1) the outer covering of the spore; (2) a thick coat developed from the periplasm round the oöspore in Peronosporeae; **exos'porous**, having scattered spores, as Fungi; **Ex'ostome**, *Exost'oma* (*στόμα*, a mouth), the foramen of the outer coat of the ovule; **Exosto'sis** (*ὀστέον*, bone), (1) the nodules on roots of Leguminosae; (2) the hard turgescence of sound wood, showing as prominent knots; **Exosty'lus** ‡ (+ STYLUS), Mirbel's word for fruit as in Labiatae, four seemingly naked nutlets; **Exothe'cium** (*θήκη*, a case), (1) the outer case of the anther (Henslow, Lindley); (2) Purkinje's term for the extine or outer layer of pollen-grains.

**exoter'ic** (*ἐξωτερικὸς*, external), arising from outside the organism, the opposite of ESOTERIC.

**exot'ic** (*ἐξωτικὸς*, foreign), not native, introduced from abroad; **Exot'ics** are those plants which are not indigenous.

**exotroph'ic** (*ἐξω*, out of, *τροφὴ*, nourishment), employed by Wiesner where an organ or lateral shoot, as opposed to the mother-shoot, is most strongly developed; **Exot'rophy**, development of lateral shoots instead of the main axis.

**expand'ed**, *expan'sus* (Lat. spread out), diffuse; **Expan'sion**, the condition of a flower in full perfection;

~ of protoplasm, the normal condition when it is impermeable to cell-sap, the opposite of contraction, when it is flaccid and permeable.

**ex'planate**, *explana'tus* (Lat., flattened out), spread out flat.

**expul'sive** (*expulsus*, driven out) **Fruits**, fruits which forcibly expel their seeds.

**exquisi'tus** ‡ (Lat., choice), used of parts larger or more highly coloured than usual, as *Bracteae exquisitae; cf.* COMA.

**exscul'ptus** (Lat., carved out), showing small depressions as though dug out, as the seeds of *Anchusa*.

**exsert'**, **exsert'ed**, *exsert'us* (Lat., protruded), protruding beyond, as stamens beyond the tube of the corolla.

**Exsicca'ta** (*exsiccatus*, dry), dried plants, usually in sets for sale or subscribers, frequently with printed tickets.

**exstip'ulate**, *exstipula'tus* (*ex*, priv., + STIPULA), wanting stipules.

**exsuc'cous**, *exsuc'cus* (Lat.), juiceless.

**Extensib'ility** (*extensus*, spread out), having the property of stretching.

**extenua'tus** (Lat., thinned), a synonym of VIRGATUS (Henslow).

**exten'sus** (Lat.), spread out.

**exte'rior** (Lat., outer), outer ; in the flower sometimes = ANTERIOR.

**extern'al**, *extern'us* (Lat.), outward ; ~ **Sheath**, a modification of the bundle-sheath, stated to occur in Ferns (Russow).

**Ex'tine** (*extimus*, outside + ine), the outer coat of a pollen-grain.

**ex'tra** (Lat.), without, beyond, as **ex'tra-axill'ary**, ~ *-axilla'ris*, beyond, or out of the axil ; ~ **cell'ular**, outside a cell ; ~ **fasic'ular**, outside the vascular bundles ; ~ **flor'al**, beyond the flower, as some nectaries ; ~ **folia'ceous**, away from the leaves, or inserted in a different position from them ; ~ **mat'rical**, outside of a nidus or matrix ; ~ **me'dian**, beyond the middle ; ~ **sem'inal**, outside the seed, as ~ ~ **Devel'opment**, following the sowing of the seed, as the escape of the embryo, etc. ; ~ **ste'lar**, the ground-tissue outside the central cylinder.

**Extrameabil'ity** (*extra*, beyond, *meabilis*, penetrable), the capacity of protoplasm to permit substances to pass outwards from its vacuoles (Janse).

**extra'rius** (Lat., outward), placed on the outside.

**extratrop'ical** (*extra*, without, + TROPIC), beyond the tropics, to the north or south of them ; **extravagi'nal** (*vagina*, a sheath), beyond or outside the sheath, applied to branches springing from buds, which break through the sheath of the subtending leaf, chiefly in grasses ; **Extravasa'tion** (*vas*, a vessel), unnatural flow of a liquid from a tissue or organ, as the "bleeding" of vines.

**ex'trorse**, *extror'sus* (*exteros*, on the outside, *versus*, towards), directed outward, as the dehiscence of an anther.

**ex'tus**, a modern term = EXTRA ; similar in form to *intus*, but not classic Latin.

**Exuda'tion** (*exudo* or *exsudo*, I sweat), the transpiration of liquids from hydathodes, etc., as seen on the leaf-tips of Monocotyledons.

**exunguic'ulate** (*ex*, priv. *ungula*, a claw), without a claw (Crozier).

**exu'tive** (*exutus*, drawn off), applied to seeds wanting the usual integument.

**Exu'viae** (Lat., stripped off clothing), cast off parts, as shed scales ; **Exuvia'tion**, the operation of shedding effete material.

**Eye**, (1) a gardener's name for an undeveloped bud ; (2) the persistent calyx of a pome, *cf.* CROWN ; (3) a conspicuous spot in a flower, as a blotch of colour ; ~ **Spot** (1) a coloured spot in a motile gamete or spore, which is sensitive to light ; (2) markings on the silicious valve of *Coscinodiscus*, consisting

of an aperture with a thickened margin in each alveole.

**faba'ceous**, *-eus* (*faba*, a bean, + aceous), like a bean, or having its qualities; **fabiform'is** (*forma*), applied to Lichen spores which are bean-shaped.

**Face**, that surface of an organ which is opposed to the back, usually the upper or inner side.

**Fa'cies** (Lat., shape), the general aspect of a plant.

**factit'ious**, *factit'ius* (Lat.), artificial.

**fac'ultative** (*facultas*, capability), occasional, incidental, as opposed to OBLIGATE; ~ **An'aërobes**, organisms which can exist without the presence of free oxygen or air; ~ **Par'asites**, normally saprophytes, but able to develop as parasites; ~ **Sap'rophytes**, the converse of the last, parasites which can run their course as saprophytes; ~ **Sym'biont**, an organism which can either exist and reach maturity independently or in symbiosis with another.

**fa'ding**, withering, without immediately falling away.

**Fae'cula**, see FECULA.

**Fairy-ring**, a circular patch of Agarics which have grown centrifugally, and whose influence on the soil is shown by greener grass after they have disappeared.

**fal'cate**, *falca'tus* (Lat.), sickle-shaped; **falca'rius**, **falcator'ius**, are Latin synonyms; **fal'ciform**, *falciform'is* (*falx*, a sickle, *forma*, shape), sickle-like.

**Fall** of the Leaf, defoliation, casting off the leaves, as done in temperate climates by deciduous trees in autumn.

**False**, *fal'sus* (Lat., untrue), spurious, having a specious resemblance; ~ **Ax'is**, a pseudaxis, see SYMPODIUM; ~ **Bark**, a layer on the outside of endogens of cellular tissue, into which fibrous tissue passes obliquely; ~ **Dichot'omy**, a dichasium, in which the lateral axes are two; ~ **Dissep'iment**, a partition which does not arise from the edges of carpels, but some form of cellular tissue; ~ **Foot**, the base of the seta in some Bryophytes, which becomes dilated; ~ **Fruit**, a pseudocarp, as a Strawberry; ~ **Indu'sium**, the recurved margin of some Fern-pinnules, which serves to protect the sori; ~ **Parench'yma** = PSEUDOPARENCHYMA; ~ **Raceme'** = HELICOID CYME; ~ **Tis'sue**, hyphal or mycelial felted tissue; **falsiner'vis** (*nervus*, a nerve), when nerves are formed of cellular tissue, without fibro-vascular bundles, as in Mosses.

**Fam'ily**, *Famil'ia*, = ORDER.

**fan-nerved**, having the nerves disposed in the fashion of a fan, radiating from the base; ~**shaped**, flabelliform; ~**veined**, = ~NERVED.

**farc'tate**, *farc'tus* (Lat., stuffed), filled up, not hollow or tubular.

**fa'riam**, =in rows, as bi-fariam, in two rows, etc.

**Fari'na** (Lat., meal), (1) Blair's term for pollen; (2) starch, or starchy matter; **farina'ceous** (+ aceous), of the nature of starch, or containing starch; **far'inose**, *farino'sus*, (1) covered with a mealiness; (2) Mohl's term for the cellulose of starch.

**Fas'cia** (Lat., a band), pl. **Fas'ciae**, a cross-band, as of colour.

**fascia'lis**, **fasc'iate**, *fascia'tus* (*fascis*, a bundle), used of the condition of a stem when several have coalesced; **Fascia'tion**, a band or bundle caused by a monstrous growth of stems into one.

**fascia'rius** (Lat., band-like), banded, or band-shaped, narrow and long, with parallel margins, as in sea-wrack.

**Fas'cicle**, *Fascic'ulus* (Lat., a little bundle), a close cluster or bundle of flowers, leaves, stems or roots; **fascic'ular**, *fascicula'ris*, **fas'cicled**, *fascicula'tus*, connected or drawn into a fascicle; **fascic'ular Camb'ium**, is that portion which belongs to the vascular bundles; ~ **Tis'sue**,

~ **Syst'em** = fibro-vascular system ; ~ **Xy'lem** = hadrome, the wood-elements of a bundle ; **fasciola'ris, fasciola'tus**, fasciated.

**fastig'iate**, *fastigia'tus* (*fastigium*, a slope, a gable), (1) parallel, clustered and erect, as the branches of *Populus fastigiata* (Linn.) ; (2) frequently used as if it meant the same as fasciate ; **Fastigia'tion**, when branches become more or less parallel with the main stem.

**Fat-en'zyme**, an unorganized ferment which breaks up oils and fats.

**Father-plant**, in hybrids, the pollen-parent or male element.

**Fatigue-substances**, Recnitzer's name for bodies thrown off the plant, which act in a restraining or poisonous way on its own life; Germ., Ermüdungstoffe.

**Fau'ces** (Lat., the throat), pl., the throat of a gamopetalous corolla ; **Faux**, singular, is an assumed word.

**Favel'la** (? a diminutive of *favus*, honeycomb), the conceptacle of *Ceramium*, a dense terminal agglomeration of spores within a thin colourless membrane ; **fave'olate**, *faveola'tus* (perhaps from *favus*, honey-comb), honey-combed, alveolate ; **Favellid'ium** (*εἰδιον*, diminutive), = CYSTOCARP.

**Favil'la**, **Favillidium**, Lindley's erroneous spelling of FAVELLA, and FAVELLIDIUM.

**fa'vose**, *favo'sus* (Lat.), honey-combed, as the receptacles of many Compositae ; **favo'so-areola'tus**, mapped-out into spaces, suggestive of the cavities of honey-comb ; ~ **dehis'cens**, seeming honey-combed after-dehiscence, as the anther of *Viscum* ; **favo'sulus**, somewhat honey-combed ; **Fa'vus**, a skin disease caused by *Achorion Schoenleinii*, Remak.

**feath'er-veined**, with secondary veins proceeding from the midrib, penni-nerved.

**feath'ery**, plumose, with long hairs which are hairy themselves.

**Fe'cula** (*faecula*, wine-lees), starch or similar substances ; **fe'culent**, thick with sediment (Crozier).

**Fecunda'tion** (*fecundo*, to make fruitful), = FERTILIZATION.

**Feed'er**, (1) a host-plant ; (2) in *Welwitschia* and other Gnetaceae, an outgrowth of the hypocotyl, serving as a temporary organ of absorption ; (3) used by Vines for the "foot" of *Selaginella*.

**fell'ens** (Lat., full of gall), bitter as gall.

**felt'ed**, matted with intertwined hairs; ~ **Tis'sue**, hyphal tissue not regularly united, but more or less grown together ; syn. TELA CONTEXTA.

**fe'male**, the fruiting element in plants, the pistil and its analogues, archegonia, oöspheres, etc., shown by ♀.

**femin'eus** (Lat., womanly), female, as **Flos** ~, a flower which contains pistils but no stamens.

**Fence**, Withering's word for INVOLUCRE.

**Fenes'tra** (Lat., a window), an opening through a membrane ; **fenes'trate**, *fenestra'tus*, *fenestra'lis*, pierced with holes, as the septum in some Cruciferae.

**fer**, Latin suffix from *fero*, I bear ; occurs in such words as *florifer*, bearing flowers ; sometimes found as **-ferus**, which is very rarely correct.

**fe'ral** (*fera*, a wild animal), wild, or indigenous ; not cultivated.

**Fer'ment** (*fermentum*, leaven), a substance which produces or excites chemical changes, but not itself appreciably contributing to the new products. Ferments may be divided into (*a*) organised ~, such as yeast and other Schizomycetes, and (*b*) unorganised ~, or enzymes ; the latter are related to and apparently derived from the proteids ; their composition is not absolutely known, and their names are usually derived from the sources whence they are derived ; diastase, invertase, papain, etc. ; **Fermenta'tion**, the catalytic operation of

ferments, particularized as **ace'tic** ~, produced by *Bacterium Aceti*, Lanzi; **alcohol'ic** ~, by yeast, and similar organisms; **butyr'ic** ~, by a *Vibrio*; **lac'tic** ~, by which sugars are turned into acids; another classification is (1) **diastat'ic** ~, converting starch into sugar; (2) ferments which decompose glucosides with production of sugar, such as emulsin; (3) ferments which convert cane-sugar into glucose, as invertase; (4) and those which convert proteids into peptones, or **peptic** ~, such as papain.

**Ferrobacte'ria** (*ferrum*, iron, + BACTERIUM), bacteria which oxidize ferrous to ferric salts.

**ferrugin'eous**, *-eus*, **ferru'ginous**, *ferrugino'sus* (*ferrugo*, rust), rust-coloured; **ferruginas'cens** (Lat.), becoming rusty; **Ferru'go** (Lat.), a disease in plants known also as "Rust," due to the *Uredo* stage of various species of *Pucci'nia*.

**fer'tile**, *fert'ilis* (Lat.), capable of producing fruit; ~ **Flow'ers**, female flowers, those which possess pistils; ~ **Sta'mens**, those bearing pollen which fecundates the ovules; **Fertiliza'tion**, *Fertilisa'tio*, impregnation of the ovules by pollen; ~ **Tube**, the channel by which gonoplasm passes from the antheridium to the oogonium in Peronosporeae; **Close** ~, breeding in-and-in, or successive progeny of closely related parents; **Cross** ~, progeny by other forms not of close affinity.

**ferula'ceous**, *ferula'ceus* (Lat.) (1) resembling the genus *Ferula*; (2) pertaining to reeds or canes, or being formed like them, hollow.

**Fervida'rium** (*fervidus*, boiling hot), applied in botanic gardens to the Stove.

**fes'tucine**, straw-coloured, as the dry culm of *Festuca*; **fes'tucous**, formed of straw.

**fe'tidus** = FOETIDUS.

**Fi'bre**, *Fi'bra* (Lat.), (1) a fine thread or filament, chambered or woody; (2) the fusiform cells of the inner bark; (3) the ultimate rootlets; **element'ary** ~, the thread in a spiral vessel, secondary deposit in a spiral; **fi'briform** (*forma*, shape), fibre-shaped; **Fi'bril**, *Fibrill'a*, diminutive of FIBRE; ~ **of Nu'cleus** = CHROMOSOME; **fi'brillate**, *fibrilla'tus*, **fi'brillose**, **fi'brillous**, *fibrillo'sus*, furnished with fibres, as roots, or having a finely lined appearance; ~ **Lay'er**, two outer layers of closely woven hyphae in *Geaster*; ~ **Myce'lium** = FIBROUS MYCELIUM; **Fi'brin** (**vegetable**), occurs in gluten, has no fibrous structure as animal fibrin, but forms when dry a tough, horny mass; **fi'bro-cel'lular**, "composed of spiral cells"; ~ **va'sal** (Crozier) = ~ **vasc'ular**, tissue of mixed vessels and fibres; ~ **Bun'dle**, or Vascular Bundle, an association of vessels characteristic of the higher plants, usually consisting of phloëm and xylem elements, often surrounded by a special layer of cells known as the bundle-sheath; ~ **Cord**, proposed by Strasburger for the similar structure in monocotyledons; ~ **Cyl'inder**, the central cylinder; ~ **Sys'tem**, the whole of the fibrous portion of a plant, exclusive of the purely cellular structures; **Fibrole'in**, Fayod's term for a very delicate membrane of the spirals of protoplasm (hyaloplasm); **fi'brous**, **fi'brose**, *fibro'sus*, having much woody fibre, as the rind of a Coco-nut; **Fi'brous-myce'lium**, when the hyphae form long branching strands; **Fi'brose**, Frémy's term for the substance of woody fibre, a variety of cellulose.

**Fi'brosin**, a reserve substance resembling FIBROSE, found by Zopf in the conidia of certain Fungi, in the form of rounded flattened discs, embedded in the protoplasm; ~ **Bod'ies**, the discs described; **fi'bry**, used by Loudon for FIBROUS.

**Fi'bula** (Lat., a buckle), a cylindrical podetium, terminated by apothecia.

**fid'dle-shaped**, panduriform.

**-fidus**, Latin suffix for cleft, as *trifidus*, 3-cleft.

**Fig-insect**, the fertilizing agent in caprification, *Blastophaga*.

**Fi'la** (pl. of *filum*, a thread), **adductor'ia**, the abortive "pistillidia" of Mosses; ~ **succulent'a**, paraphyses.

**Fil'ament**, *Filament'um* (*filum*, a thread); (1) the stalk of an anther, the thread-like stem; (2) any thread-like body; **Filament'a ostiola'ria**, delicate colourless threads lining the perithecium round the epithecium of *Verrucaria*; **filament'ous**, **filament'ose**, *filamento'sus*, formed of filaments or fibres; ~ **Fung'us**, growth form from a hypha without union with the hyphae; ~ **Myce'lium** = FIBROUS MYCELIUM; ~ **Spor'ophore**, = simple sporophore; ~ **Thal'lus** = FRUTICOSE THALLUS; **Filar-plasma** (πλάσμα, moulded), Strasburger's term for KINOPLASM; **fila'rious** (Crozier) = FILAMENTOUS; **fila'tus** (Lat.) = VIRGATUS.

**Files**, a series of *Navicula*-like frustules as in *Micromega*.

**fil'icoid** (*filix*, a fern, εἶδος, like), fern-like; **Filicol'ogy** (λόγος, discourse), = PTERIDOLOGY.

**fil'iform**, *filiform'is* (*filum*, a thread, *forma*, shape), thread-shaped; ~ **Appara'tus**, the upper ends of the synergidae, which pierce through and are prolonged beyond the summit of the embryo sac; **filipend'ulous**, *-lus* (*pendulus*, hanging down), having tuberous swellings in the middle or end of filiform roots; **Filobacte'ria** (+ BACTERIUM), thread-like bacteria; **fi'lose**, ending in a thread-like process (Crozier).

**Fim'bria** (Lat., fringe), (1) a fringe; (2) an elastic-toothed membrane beneath the operculum of mosses; **fim'briate**, *fimbria'tus*, with the margin bordered by long slender processes; **fim'bricate** = FIMBRIATE (Crozier); **Fimbril'la**, a diminutive fringe; **fimbril'late**, *fimbrilla'tus*, having fimbrillae; **fimbrillif'erous**, *-rus*, with many little fringes as the receptacle of the Compositae.

**fimeta'rius** (*fimetum*, a dunghill), growing on or amongst dung.

**Finger-and-toe**, a disease in Crucifers caused by *Plasmodiophora Brassicae*, Woron.;—Clubbing or Anbury.

**fing'ered**, digitate.

**Firstling-Cell**, from the Germ. Erstlingzelle, the first of a new generation from an auxospore in Diatoms.

**fis'sile**, *fis'silis* (Lat.), tending to split, or easily split; **Fis'sion**, splitting; ~ **Fun'gi** = Schizomycetes; **Fissip'arism** (*pario*, I bring forth), the act of multiplication among the lower forms by breaking up into living portions; **fissip'arous**, dividing into two or more divisions by splitting; **fis'sus** (Lat., split), split or divided half-way.

**Fis'tula** (Lat.), a pipe; ~ **spira'lis** = TRACHEA; **fis'tular**, **fis'tulose**, *fistulo'sus*, **fis'tulous**, hollow throughout its length as the leaf and stem of an onion.

**Fixa'tion** of $CO_2$, respiration of oxygen and retention of carbon dioxide.

**flabel'late**, *flabella'tus* (*flabellum*, a fan), fan-shaped, dilated in a wedge-shaped, sometimes plaited; **flabel'liform**, *flabelliform'is* (*forma*, shape), shaped as a fan; **flabelliner'ved** (*nervus*, a nerve), radiate-veined.

**flac'cid**, *flac'cidus* (Lat.), withered and limp, flabby.

**Flacherie** (Fr.), a disease in silkworm caused by *Micrococcus Bombycis*, Cohn.

**flag'ellate**, *flagella'tus* (*flagellum*, a whip), provided with whip-like runners; **flagella'ris**, having creeping sarmenta; **flag'ellary**, caused by flagella, as the motion of zoospores (Crozier); **Flagel'lum**, pl. **Flagel'la** (1) a runner or sarmentum, branchlets in Mosses; (2) the whip-like process of the protoplasm of a swarmspore; (3) similar organs in the cells of some Schizomycetes; **flagel'liform**, *flagelliform'is* (*forma*,

shape), (1) resembling a runner, or (2) lash-like, as the cilia of zoospores.

**Flag'on-shaped** (Loudon), used for flask-shaped.

**Flake**, a nectariferous gland; **fla'ky**, lamelliform.

**flame-coloured**, *flam'meus* (Lat.), fiery red.

**Flank-curv'ature**, unequal growth of climbers, Germ. "Flanken-Krümmung"; **Flanks**, the lateral surfaces of a bilateral body.

**Flask**, the utricle of *Carex*; **flask-shaped**, having the form of a Florence flask, somewhat globular, with a drawn out neck.

**Flats**, proposed equivalent for the German "Etagenbildung."

**Flat'tening** (1) the fasciation of a stem; (2) the production of a cladodium.

**Flave'do** (Lat.), yellowness, a disease in which the green parts have become yellow.

**flaves'cent**, *flaves'cens* (Lat.), yellowish, becoming yellow; **fla'vicans**, **fla'vidus** (Lat.), somewhat yellow; **fla'vo-vi'rens** (Lat.), yellowish green; **fla'vous**, *fla'vus*, nearly pure yellow, a bright clear hue.

**Flee'ciness**, villosity.

**Flesh**, the soft parts, as the flesh of apples or pears; **flesh'y**, succulent.

**flexed** (*flexus*, bent), used of Diatoms which appear as though bent; **flex'ible**, *flex'ilis*, *flexib'ilis*, capable of being bent, but elastic enough to be able to resume its original figure; **flex'uose**, *flexuo'sus*, **flex'uous**, bent alternately in opposite directions, zigzag; **Flex'ure**, the "bend" of Diatoms.

**float'ing**, borne on the surface of water.

**Floc'ci**, pl. of **Floc'cus** (Lat., a lock of wool), locks of soft hair or wool; **floc'cose**, *flocco'sus*, bearing flocci, ~ **Myce'lium**, = FIBROUS MYCELIUM; **floc'culent**, *flocculent'us*, diminutive of FLOCCOSE.

**Flo'ra** (Lat., goddess of flowers), (1) the aggregate plants of a country or district, (2) a work which contains an enumeration of them; **Flo'rae horolo'gium**, a floral clock, certain plants arranged in the order of the hours of opening or closing; **flo'ral**, *flora'lis*, belong to flowers; ~ **Di'agram**, a drawing to show the relative position and number of the constituent parts; ~ **En'velopes**, the perianth leaves, calyx and corolla; ~ **Glume**, the lower glume of the flower in grasses; flowering glume (Beal); ~ **Leaf** = BRACT; **Flores'cence**, *Florescen'tia*, anthesis, the period of flowering; **Flo'ret**, a small flower, one of a cluster, as in Compositae; **floribun'dus** (*abundus*, = production of present activity), abounding in flowers; **Floricul'ture** (*cultura*, cultivation), cultivation of flowers, flower gardening; **Flor'ie**, Grew's word for perianth.

**flo'rifer** (Lat.), **florif'erous**, flower-bearing; **florif'erae Gem'mae**, flower buds; **Florifica'tion**, the act or time of flowering.

**flor'iform** (*flos*, *floris*, a flower; *forma*, shape), shaped like a flower; **Flo'rilege** (*lego*, I gather), a treatise on flowers; **florip'arous** *-us* (*pario*, I bring forth), (1) producing flowers, (2) a monstrosity producing other flowers instead of fruit; **Flo'rist**, (1) a cultivator of flowers, especially those variable forms known as florist's flowers, (2) a writer of a Flora, (3) in foreign usage "Florist" means a local botanist; **Flo'rula**, (1) a small flora, (2) the botanic account of a small district; **flo'rulent**, flowery; **flo'rus**, in composition means flowered, as *uni-florus*, one-flowered; **Flos** (Lat.), an assemblage of the organs essential for fertilization, as stamens and pistils, with some protecting envelope; ~ **A'quae**, floating Algae, as *Rivularia fluitans*, Cohn; ~ **compos'itus** ‡= CAPITULUM; ~ **ple'nus**, a double flower, where the stamens or pis-

tils, or both, are converted into petals; **flos'cular, flos'culous,** *flosculo'sus* (1) relating to florets or flowers, or presenting many florets; (2) with tubular florets.

**Flos'cule, Flos'culum** (Blair), *Flosculus*, a little flower, a floret; **Sem'i - flos'cule** a composite floret; **Floss,** the down in certain Compositae, as Thistle-down; **Flossifica'tion,** flowering, expansion of flowers.

**Flou'rish,** Blair's word for a disk-floret of Compositae; **half ~** the same for ligulate florets.

**Flow'er,** defined under FLOS; **~ Bud,** an unexpanded flower, as distinct from a leaf-bud; **~ Head,** a cluster of flowers, as the Capitulum or Head in Compositae; **Flow'erage,** the state of being in flower; **Flow'eret,** a small flower, a floret; **Flow'eriness,** abounding with flowers; **Flow'ering,** the maturity of the floral organs, and expansion of their envelopes; **~ Glume,** the lower of the two organs which subtend the flower of Grasses (the upper being the palea); **~ Plants** = PHANEROGAMS; **flow'erless,** destitute of flowers; **~ Plants** = CRYPTOGAMS; **Flow'erlessness,** absence of flowers; **flow'ery,** abounding in flowers.

**Flowers of Tan** = *Aethalium septicum*, Fr.; **~ of Wine,** growth of *Saccharomyces Mycoderma*, Reess.

**flu'itant,** *fluitans* (Lat.), floating.

**flumina'lis, flumin'eus** (*flumen*, a river), applied to plants which grow in running water.

**Fluores'cence** (from Fluor-spar), the property of diminishing the refrangibility of light; **~ of Chlor'ophyll,** the shifting of the spectrum by the colouring matter contained in chlorophyll.

**flu'vial,** *fluvia'lis*, **fluviat'ic** (Crozier), **flu'viatile,** *fluviat'ilis* (Lat.), applied to plants growing in streams.

**Fly-wood,** oakwood destroyed by *Stereum* (Tubeuf); **Fly-traps,** contrivances by which insects are caught, as pitchers, tentacles of *Drosera*, etc.

**foemin'eus** = FEMINEUS, female.

**foe'tidus** (Lat., stinking), fetid, smelling strongly and disagreeably; **Foe'tor** (Lat., a stench), the odour given off by flowers which thereby attract carrion flies.

**fo'lded,** in vernation when the two halves of a leaf are applied to one another; **~ Tis'sue,** endoderm with suberified or liquified membrane, confined to a band on the lateral and transverse faces of the cells, without thickening (Van Tieghem).

**folia'ceous,** *-eus* (*folium*, a leaf, + aceous), having the texture or shape of a leaf, as the branches of *Xylophylla*; **~ Thal'lus,** a frondose thallus, flat and leaf-like, usually crisped and lobed, which spreads over the surface on which it grows, and can be detached without much injury; **Folia'ceae,** frondose vascular Cryptogams; **Fo'liage,** the leafy covering, especially of trees; **~ Leaves,** ordinary leaves, as distinguished from those which have undergone metamorphoses as bracts, petals, etc.; **fo'liar,** *folia'ris*, (1) leafy or leaf-like; (2) inserted on, or forming an appendix to a leaf, epiphyllous; *cir'rhus folia'ris* = tendril; **~ Gap,** a mesh in the vascular bundle cylinder from the margin of which vascular bundles pass into the frond in Ferns; **~ Spur,** a dwarf shoot in a pine-tree, which bears a pair of leaves (Hartig); **~ Trace,** = LEAF-TRACE; the remains of the vascular bundle or bundles which supplied the leaf.

**fo'liate,** *folia'tus* (Lat., leaved), clothed with leaves, as **bi-foliate,** two-leaved, etc.

**Folia'tion,** *Folia'tio* (Lat.), vernation; used by Grew for the act of leafing.

**Fo'liature** (*foliatura*, foliage), Blair's term for petals.

**folif'erous, foliif'erous,** *-rus* (*folium*, a leaf, *fero*, I bear), leaf-bearing; **foliif'erae Gem'mae** = leaf-buds; **foliic'olous** (*colo*, I inhabit), grow-

ing on leaves, as some Fungi and Lichens; **fo'liiform,** *foliiform'is* (*forma*, shape) = foliaceous; **folii-p'arous,** *-rus* (*pario*, I bring forth), bearing leaves.

**Fo'liole** (dim. of *folium*), a leaflet, the secondary division of a compound leaf; **fo'liolate,** *foliola'tus*, clothed with leaflets; **bi-, tri-fo'liolate,** two-three-leafletted; **folio'lean,** *foleola'nus*, growing from the end of a leaf; **fo'liolose,** closely covered with leaflets; **Fo'liolum,** a small leaf or leaflet; **fo'liose,** *folio'sus*, closely clothed with leaves; **fo'lious,** having leaves intermixed with flowers; **Fo'lium** (Lat.), a leaf, pl. **Fo'lia.**

**Follice'tum** (*folliculum*, a small bag), a whorl of follicles; **Fol'licle,** *Follic'ulus*, (1) a fruit of one carpel, opening by a ventral suture to which the seeds are attached, formerly applied to any capsular fruit; (2) by Linnaeus used for the bladder of *Utricularia*; **follic'ular,** *follicula'ris*, **folliculiform'is** (*forma*, shape), shaped like a follicle.

**fonta'nus, fontina'lis** (Lat., relating to a spring), growing in or near a spring of water.

**Food-bodies,** small pear-shaped bodies formed on or near the leaves of certain plants, as *Acacia spadicifera*, Cham. & Schlecht, and *Leea aequata*, Linn., which are utilised by ants as food; Germ. "Ameisenbrödchen."

**Foot,** (1) as a measure, 12 inches, or 30.5 cm., sign ′; (2) = PODIUM; (3) a development from the hypobasal part of the embryo, as an organ of attachment and temporary nutrition; (4) in Myxogastres, the first development from the plasmodium which leads to the formation of spores, a cell-wall of cellulose, forming an axis (Van Tieghem); ~ **Cell,** the spore of *Guttulina rosea*, Cienk., arising from a naked cell of protoplasm, from the aggregated plasmodium; ~ **Em'bryo,** an arrested terminal growth of the embryo of *Cutleria*, thus differing from the protonematoid embryo of the same species; ~ **Rot,** a disease on species of *Citrus* caused by *Fusarium Limonis*, Briosi; ~ **Stalk,** a stem specialised as peduncle, petiole, etc.

**Fora'men** (Lat., a hole), an aperture, especially that in the outer integuments of the ovule, *cf.* MICROPYLE; **foram'inose,** *foramino'sus*, perforated by holes; **Foramin'ula,** "the ostiolum of certain Fungals" (Lindley); **foramin'ulose,** marked with little holes.

**Force,** any cause which changes the state of a body as to rest or motion; vital force is kinetic energy.

**For'cing,** the operation by which cultivators produce fruit and vegetables out of season, early or late.

**for'cipate,** *foricipa'tus* (*forceps*, nippers), forked like pincers.

**forfica'tus** (*forfex*, scissors), scissor-like, resembling shears.

**forked,** separating into two divisions, more or less apart.

**Form** (*for'ma*, shape), a slight variety, or variation, as long and short-styled Forms; ~ **Gen'us,** a genus made up of an assemblage of ~ **Spe'cies,** an apparent species which is really a single stage of the life-cycle of a pleomorphous species; ~ **Spore,** a body simulating a spore, but without germinating power, or remaining attached to its sporophore; **For'mae oxyda'tae,** crustaceous Lichens which have become rust-coloured from an infiltration of some salt of iron.

**Forma'tion** (*formatio*, a shaping), in botany, applied to an assemblage of plants of similar habits and environment, as a forest is a ~ of trees, turf a ~ of grasses; an association, in Germ. "Pflanzenverein"; **form'ative,** giving form, plastic; ~ **Mate'rials,** applied to such as starch, sugar, fats, and albumi-

noids ; ~ **Re'gion**, the growing point proper.

**for'nicate**, *fornica'tus* (Lat., arched over), provided with scale-like appendages in the corolla-tube, as in *Myosotis;* **For'nices**, pl. of **For'nix** (Lat.), a little scale.

**Fos'sil** (*fossus*, dug), the remains of a plant changed to a stony consistence, from various strata ; ~ **Bot'any**, the department which takes note of fossil plants, palaeobotany.

**Fos'sula** (Lat., a little ditch), a small groove in some Diatom-valves.

**Fost'er-plant** = HOST.

**four-fold**, quadruple ; ~ **Pol'len-Grains**, as in *Oenothera*, which form coherent tetrads.

**Fov'ea** (Lat., a small pit), a depression or pit, as in the upper surface of the leaf-base in *Isoëtes*, which contains the sporangium.

**Fov'eola**, (1) a small pit ; (2) "the perithecium of certain Fungals" (Lindley) ; (3) in *Isoëtes*, a small depression above the fovea, from which the ligule springs ; **fov'eate**, *fovea'tus*, pitted ; **fov'eolate**, *foveola'tus*, diminutive of the last.

**Fovil'la** (*foveo*, I nourish), the contents of the pollen-grain.

**Fox'glove-shaped**, like the corolla of *Digitalis*, digitaliform.

**frac'idus** (Lat., mellow), of a pasty texture, between fleshy and pulpy.

**Fragmenta'tion** (*fragmentum*, a piece), Van Beneden's term for direct division of the nucleus.

**Fran'gulin**, a yellow crystalline body from the parenchyma of *Rhamnus Frangula*, Linn.

**Fratern'ity** (*fraternitas*, a brotherhood), see ADELPHIA.

**Frax'inin**, a principle existing in the bark of the ash, *Fraxinus excelsior*, Linn.

**free**, not adhering, the reverse of adnate ; **Free-cell**, a cell formed by ~ **Cell-forma'tion**, the production of new cells from several nuclei within the mother-cell, as in pollen, endogenous cell-formation.

**Fren'ching**, a disease caused by *Fusarium vasinfectum*, Atkins., in the leaf of the cotton-plant (Tubeuf).

**fre'quent**, used of a species often occurring.

**Frigida'rium** (Lat., the cool room), in botanic gardens applied to the Orangery, or Temperate House, with simple exclusion of frost.

**Frill** = ARMILLA.

**Fringe**, used by Sir W. J. Hooker for the peristome of mosses ; **fringed**, margined with hair-like appendages, fimbriate.

**Frond**, *Frons* (Lat., a leaf), (1) the foliage of Ferns and other Cryptogams ; (2) the leaves of Palms, according to Linnaeus ; **frondesce'**, to unfold leaves ; **Frondes'cence**, *Frondescen'tia*, (1) vernation ; (2) phyllody ; (3) by Morren restricted to the formation of leaf-like organs in the place of petals ; see also VIRESCENCE ; **frondif'erous** (*fero*, I bear), producing fronds ; **fron'diform** (*forma*, shape), like the fronds of Ferns ; **frondip'arous** (*pario*, I bring forth), (1) bearing fronds ; (2) the monstrous production of leaves instead of fruit ; **Fron'dlet**, a small frond ; **fron'dose**, **fron'dous**, *frondo'sus* (Lat., full of leaves), (1) leafy ; (2) frond-like or bearing fronds ; ~ **Thal'lus**, foliaceous thallus ; **Fron'dula**, **Fron'dules**, used by J. Smith for the main stems of *Selaginella*.

**Front**, of a Diatom, is that view which has the cingulum facing and the valves fore-shortened in side view.

**frost'ed**, with a surface having the appearance of hoar frost.

**Fructes'cence**, *Fructescen'tia* (*fructus*, fruit), the time of maturity of fruit.

**fructif'erous** (*fructifer*, fruit-bearing), producing or bearing fruit ; **Ca'lyx fruc'tifer**, the fruiting calyx.

**Fructifica'tion**, *Fructifica'tio* (Lat.), (1) fruiting ; (2) in Cryptogams, the result of the sexual act ; (3)

any sporogenous structure or an aggregate of them.

**fructip'arous** (*fructus*, fruit, *pario*, I bring forth); **Fruc'tose**, fruit-sugar, or levulose; it exists with other sugars in fruits, honey, and treacle; **Fruc'tus** (Lat.), fruit, the product resulting from fertilization.

**frugif'erous** (*fruges*, pl. of *frux*, fruits of the earth, *fero*, I bear), producing fruits or crops.

**Fruit**, (1) strictly, the pericarp and its seeds, the fertilized and developed ovary; (2) widely, the matured pericarp and its contents, with any external part which is an integral portion of it; ~ **Dots**, the sori of Ferns; ~ **Galls**, diseased growth caused by *Ustilago Treubii*, Solms; ~ **Stalk**, (1) peduncle; (2) the seta of Mosses; ~ **Su'gar**, = levulose; ~ **Walls**, (or ~ **Coats**) = pericarp; **Spu'rious** ~ = PSEUDOCARP.

**frumenta'ceous**, *frumenta'ceus* (Lat., of corn); **frumenta'rious**, *frumenta'rius* (Lat.), (1) pertaining to grain; (2) producing sufficient starch to warrant culture; **Frumen'tum** (Lat., grain), produce of corn-lands; grain or cereals.

**frustra'neous** (*frustra*, useless), relating to the Linnean order *Frustranea*, Compositae with the disk flowers hermaphrodite, and those of the ray neuter or imperfect.

**Frus'tule**, *Frus'tula* (*frustulum*, a small piece), a Diatom cell, consisting of valves, girdle and contents; **Frus'tilla**, an obsolete synonym; **frus'tulose**, consisting of small fragments.

**Fru'tex** (Lat.), a shrub, a woody plant destitute of a trunk; **frutes'cent**, *frutes'cens*, becoming shrubby; **fru'ticant**, *fru'ticans*, growing into a shrub-like plant; **fru'ticose**, *frutico'sus*, **fru'ticous**, shrubby; ~ **Thal'lus**, a Lichen having a shrub-like thallus; **frutic'ulose**, somewhat shrubby; **Frutic'ulus** (Lat)., a small shrub.

**Fru'tose** = FRUCTOSE, Fruit-sugar.

**fu'coid** (*fu'cus*, from *φῦκος*, seaweed, *εἶδος*, like), **fucoi'dal**, resembling seaweed; **Fu'cosan**, Hanstein's name for a granular substance found in the assimilating tissue of Fucoideae, the Phaeophyceae-starch of Schmitz; **Fu'cose**, is probably a partial inversion of it; **Fucoxan'thine** (*ξανθός*, yellow), Sorby's name for the colouring matter of the olive-green seaweeds.

**fuga'cious** (*fugax*, fleeting), soon perishing.

**ful'ciens** (*fulcio*, I support), supporting, used of an organ above another.

**Ful'cra** (pl. of *fulcrum*, a prop), the appendages of the leaves, as prickles, tendrils, stipules, etc.; **fulcra'ceus**, ‡ of or belonging to the fulcra; **ful'crate**, *fulcra'tus*, having fulcra.

**fuligin'eus** (Lat., sooty), **fulig'inous**, **fulig'inose**, *fuligino'sus*, sooty, or soot-coloured.

**fulmin'eus** (*fulmen*, lightning), fulvous, almost brown; used of a species of *Cortinarius* by Fries.

**full**, used of a double-flower, the stamens and pistils being transformed into petals.

**fulveï'lus**, **fulves'cens**, **ful'vidus** (Lat)., **ful'vid** (Crozier), the diminutive of the next; **ful'vous**, *ful'vus* (Lat)., yellow, tawny.

**fu'meus** (Lat., full of smoke), smoky, or smoke-coloured; **fu'midus** (Lat.), slightly smoke-coloured; **fumiga'tus** (Lat.), as though smoked, fumed; **fu'mose**, *fumo'sus*, **fu'mous**, smoke-grey.

**funa'lis** (Lat., of a rope) = FUNILIFORM.

**fuma'rioid**, like the genus *Fumaria*.

**Func'tion** (*functio*, performance), the peculiar action caused by certain stimuli; **func'tional Metab'olism**, the kinetic effects of certain chemical changes in the plant.

**fundamen'tal** (*fundamentum*, groundwork), basic; ~ **Cells**, parenchyma; ~ **Or'gans**, the nutritive organs essential to plant existence; ~ **Spi'ral** = genetic spiral; ~ **Sys'tem** = cellular system; ~ **Tis'sue**, tissue not

belonging to the normal or fascicular system, ground-tissue; **fundamenta'lius**, an essential part, as the axis and appendages of a plant; **Fundamen'tum** = HYPOCOTYL.

**Fun'dus** (Lat., foundation) = COLLUM.

**funga'ceous** (*fungus*, a mushroom), F. von Mueller's word for fungoid or fungus-like; **fun'gal**, relating to fungi; **fun'gic**, belonging to mushrooms; ~ **Ac'id**, a mixture of citric, malic, and phosphoric acids (Cooke); **fun'gicidal** (*-cida*, a killer), destructive of fungi; **Fungici'de**, an agent or mixture for killing Fungi, antimycotic; **fun'giform**, *fungiform'is* (*forma*, shape), **fungil'liform**, *fungilli'form'is*, mushroom-shaped; **Fungil'lus**, a small parasitic fungus; **Fung'in**, the "flesh" of mushrooms, fungus cellulose; **fungi'nus**, belonging to a fungus; **fung'oid** (*εἶδος*, like), pertaining to a fungus; ~ **Par'asites**, parasites which are Fungi; **fung'ose**, *fungo'sus*, **fung'ous**, (1) spongy in texture; (2) relating to a Fungus; (3) produced by a Fungus; **Fungs**, F. von Mueller's word for the plural of **Fung'us** (Lat., a mushroom), pl. **Fungi**, thallophytes destitute of chlorophyll, parasitic or saprophytic, comprehending forms from the simplest unicellular structure to some of complex character, many are symbiotic; ~ **Cel'luose**, the substance of the cell-wall in Fungi; ~ **Gam'boge**, a yellow, resinous colouring matter found in Fungi; ~ **Traps**, or "catch-crops," quickly growing crops to secure attack by *Plasmodiophora Brassicae*, and removal with the fungus, leaving the land free for that season for a later crop of Crucifers; **fung'used**, attacked by fungus (Crozier).

**Fu'nicle**, *Funic'ulus* (*funis*, a rope), (1) the cord or thread which sometimes connects the ovule or seed to the placenta; (2) in *Nidularia*, a cord of hyphae attaching the peridiolum to the inner surface of the wall of the peridium; **fu'niform** (*forma*, shape), rope-like; **funil'iform**, applied to organs, tough, cylindrical, and flexible, as the roots of arborescent Monocotyledons.

**Fun'nel**, in Marsiliaceae, a space below the thick outer coats of the macrospore into which the apical papilla projects (Goebel); **fun'nel-form**, **fun'nel-shaped**, hypocrateriform.

**fur'cate**, *furca'tus* (Lat.) forked, with terminal lobes which are like prongs; **fur'cellate**, *furcella'tus*, diminutively forked.

**furfura'ceous**, *-eus* (*furfur*, bran), scurfy, having soft scales.

**fur'rowed**, sulcate, striate on a large scale.

**fur'ry**, pubescent (Lowe).

**fur'vus** (Lat. swarthy), black and lustreless.

**fusca'tus**, **fuscel'lus**, **fusces'cent**, *-ens*, **fuscid'ulus**, somewhat dusky; **fus'cous**, *fus'cus* (Lat. dark), dusky, too brown for a grey; the word is akin to *furvus*.

**fu'siform**, *fusiform'is* (*fusus*, a spindle, *forma*, shape), thick, but tapering towards each end; **fusi'nus**, ‡ a synonym of the last.

**Fu'sion** (*fusis*, a melting), the complete union of vessels, as in the laticiferous vessels.

**fu'soid** (*fusus*, a spindle, *εἶδος*, like), somewhat fusiform.

**Galac'tin** (*γάλα*, milk), (1) a principle in the juice of *Galactodendron*; (2) a substance in leguminous seeds like Gum Arabic; **galacti'tis**, white as milk; **Galac'tose**, a sugar produced from Galactin.

**Gal'banum** (Lat.), a gum of uncertain origin; **gal'banus** (Lat.), a colour resembling the same, greenish-yellow.

**Gal'bulus** (Lat.), the fruit of the cypress, a modified cone, the apex of each carpellary scale being enlarged and somewhat fleshy.

**Gal'ea** (Lat., a helmet), a petal shaped like a helmet, placed next to the axis, as in *Aconitum*; **gal'eate**,

*galea'tus*, hollow and vaulted, as in many labiate corollas ; **galeiform'is** (*forma*, shape) = galeate.

**galeric'ulate** (*galericulum*, a cap), covered, as with a hat.

**Gall**, *Gal'la* (Lat., an oak-apple), a monstrous growth caused by an insect puncture ; ~ **Flow'ers**, atrophied female flowers of the fig, within whose ovaries the eggs of an insect undergo evolution ; **Gal'lic Ac'id**, an astringent occurring abundantly in oak-galls ; **Gallotan'nin**, a glucoside occurring in oak-bark.

**galoch'rous** (γάλα, milk, χρώς, skin), milk white.

**Galto'nian Curve**, see NEWTONIAN CURVE.

**galvanotrop'ic** (after Galvani, the discoverer of galvanic electricity, τροπή, a turn), curvature shown when subjected to a galvanic current, usually towards the positive pole ; **Galvanot'ropism**, the condition just described ; **neg'ative** ~, when the curvature is towards the negative pole of the current.

**Gam'boge**, a yellow resinous gum from several species of Guttiferae ; **Fungus** ~, a somewhat similar product found in some Fungi.

**Gam'etange**, **Gametang'ium** (γαμέτης, a spouse, ἀγγεῖον, a vessel), differentiated cavities in the filaments of certain Algae which produce GAMETES; **Gam'ete**, a unisexual protoplasmic body, incapable of giving rise to another individual until after conjugation with another gamete, and the joint production of a ZYGOTE ; **gametogen'ic** (γεννάω, I produce), giving rise to gametes ; **Gametog'eny**, the production of gametes ; **Gametogon'ium** (γόνος, offspring), the mother-cell of a brood of gametes ; **Gam'eto-nu'cleus**, the nucleus of a gamete ; **Gametogen'esis** (γεννάω, I bring forth), the production of gametes ; **Gam'etoid** (εἶδος, resemblance), an apocytial structure which unites like a gamete, producing a zygotoid as the result ; **Gam'etophore** (φορέω, I bear), the portion of an algal filament which produces gametes, according to function further discriminated as ANDROGAMETOPHORE and GYNOGAMETOPHORE ; **Gam'etophyll** (φύλλον, a leaf), a more or less specialised leaf which bears the sexual organs ; **Gam'etophyte** (φυτόν, a plant), the generation which bears the sexual organs, producing gametes, in turn giving rise to the SPOROPHYTE ; **Gam'etoplasm** (πλάσμα, moulded), the protoplasm of gametes.

**gamodes'mic** (γάμος, marriage, union, δεσμός, a bond), used of a stele which has its component vascular elements fused together ; **Gamodes'my**, the stelar condition in question ; **Gamoe'cia** (οἶκος, a house), used by Lindberg for the inflorescence of Bryophytes ; **gamogas'trous** (γαστήρ, the belly), applied to a pistil formed by the more or less complete union of ovaries, the styles and stigmas remaining free ; **Gamogen'esis** (γένεσις, beginning), sexual reproduction ; **gamogen'ic** (γένος, offspring), developed as the result of a sexual process ; **Gamome'rius** ‡ (μερός, a part), a flower whose parts are united by their edges (Lindley) ; **Gamopet'alae** (πέταλον, a flower-leaf), plants having the petals united, adj. ; **gamopet'alous**, *-lus* ; **gamophyll'ous**, *-lus* (φύλλον, a leaf), with leaves united by their edges ; **Gam'ophyte** (φυτόν, a plant), proposed by C. Macmillan for "sexual plants ;" **gamosep'alous**, *-lus* (+ SEPALUM), the sepals united into a whole ; **Gamospor'ae** (σπορά, seed), Cohn's term for those Algae which produce zoogonidia or zygospores, as the Conjugatae, Volvocineae, and Fucoideae, *cf.* CARPOSPOREAE ; **Gam'ostele** (στήλη, a post), a polystele, in which the vascular bundles are not distinct throughout their entire length, but fused together at some portion ; adj. **gamoste'lic** ;

**Gamoste'ly**, the state described; **gamotrop'ic** (*τροπὴ*, a turn), the position of flowers when expanded (Hansgirg), *cf.* CARPOTROPIC; **Gamot'ropism** (*τροπὴ*, a turning), Macmillan's term for the movement of mutual attraction in similar conjugating gametes.

**Gang'lia**, pl. of **Gang'lion** (*γαγγλίον*, a little tumour), used for various enlargements of mycelium, some being rudimentary fructifications (Crozier).

**Gang'rene**, *Gangre'na* (*γάγγραινα*, an eating ulcer), a disease ending in putrid decay.

**Gas**, pl. **Gases**, in plants, a continuous system from the stomata and lenticels by the intercellar spaces.

**Gasteromyce'tes** (*γαστὴρ*, the belly; *μύκης*, fungus), a division of Fungi which includes *Lycoperdon*, Puff-balls; **Gasterothalam'eae** (*θάλαμος*, a bed-chamber), referring to those Lichens whose sporangia are always closed or which burst through the cortical layer of the Thallus; **gas'tric Bacte'ria**, those which are found in the digestive tract of animals.

**Gattine'** (Fr.), a disease in silkworms caused by parasitic Fungi.

**Gaul'therase**, an enzyme producing oil of Wintergreen and glucose from **Gaul'therin**, a principle occurring in *Gaultheria*.

**Geitonocarp'y** (*γείτων*, a neighbour; *καρπὸς*, fruit), fruit produced by fertilization of different flowers in the same individual; **Geitonog'amy** (*γάμος*, marriage), fertilization by another flower on the same plant.

**Gel'atin** (*gela'tus*, congealed), in plants confined to albumen-like bodies, which are tough, viscid, and scarcely soluble in water; **Gelat'ina hymene'a**, a gelatinous substance surrounding the asci and paraphyses in some Lichens (Leighton); **Gelatiniza'tion**, used when a membrane breaks down into a jelly-like mass; **gelat'inous**, jelly-like; ~ **Felt**; ~ **Tis'sue**, tissue which is slimy from the cell membrane being soft and mucilaginous; **gelat'inose**, *gelatino'sus* (*gelatio*, freezing), having the consistence or appearance of jelly; **Gel'atoid** (*εἶδος*, like), suggested for protein-like substances resembling gelatin (Escombe); **Gelifica'tion**, becoming gelatinous; **Gelin'eae**, cells in Algae which secrete vegetable jelly; **Gel'ose**, vegetable jelly from Agar-Agar.

**Gem**, a leaf-bud, *cf.* GEMMA.

**Gem'inate**, *gemina'tus* (Lat. doubled), in pairs, binate.

**Gem'ini** (Lat.), twins, paired; **geminiflor'us** (*flos*, *floris*, a flower), bearing two flowers, or two flowers together.

**Gem'ma** (Lat.), (1) a young bud, either of flower or leaf as used by Ray; (2) an asexual product of some Cryptogams, as in the Hepaticae, analogous to leaf-buds; ~ **Brood** = BROOD-GEMMA; ~ **Cup** = CYATHUS; **gemma'ceous** (+ aceous), relating to leaf-buds; **Gemma'tion**, *Gemma'tio*, (1) budding, vernation; (2) disposition or phyllotaxis of buds; **gemmif'erous** (*fero*, I bear), bearing buds; **gem'miform** (*forma*, shape), bud-shaped; **gemmip'arous** (*pario*, I bear), producing buds; **Gem'mule**, *Gem'mula*, (1) buds of Mosses, and reproductive bodies of Algae; (2) = PLUMULE; (3) = OVULE (Endlicher); (4) certain primary formative granules in the protoplasm (Naegeli).

**Geneagen'esis** (*γενεὰ*, stock, race; *γένεσις*, beginning) = PARTHENOGENESIS.

**Gen'era**, pl. of GENUS.

**gen'eral**, *genera'lis* (Lat., pertaining to all), opposed to partial, as ~ INVOLUCRE.

**Gen'erating** (*generatio*, a begetting), producing; ~ **Spi'ral** = GENETIC SPIRAL; **Tis'sue** = MERISTEM; **gen'erative Cell**, (1) a gamete or sexual reproductive cell; (2) the cell in a pollen grain which develops into male gametes; ~ **Nu'cleus**, the nucleus in a pollen-grain which is

actively concerned in fertilization; **Genera'tions**, alternation of, see ALTERNATION; **Gen'erative Nu'cleus**, see NUCLEUS.

**gener'ic**, *gener'icus* (*genus*, birth, race), the differences which make the genus as opposed to those which make the order, or species.

**Genesiol'ogy** (*γένεσις*, origin, *λόγος*, discourse), the doctrine of the transmission of qualities from the parent, both in vegetative and sexual reproduction (Archer); **genet'ic**, genealogical, that which comes by inheritance; ~ **Spi'ral**, a spiral line which passes through the point of insertion of all equivalent lateral members on an axis, in order of age.

**genic'ulate**, *genicula'tus* (Lat., with bent knees), abruptly bent so as to resemble the knee-joint; **Genic'ulum**, a node of a stem (Lindley).

**Genita'lia**, **Gen'itals** (*genitalis*, pertaining to birth), in plants, the stamens and pistils, or their analogues.

**Gens** (Lat., a nation), a tribe in botany.

**Gen'tianine**, the bitter principle of *Gentiana*.

**Genuflec'tion** (*genu*, the knee, *flecto*, I bend), a bend in a conjugating filament of an Alga; **gen'uflexed** (*flexus*, bent), bent, as the valves of certain Diatoms.

**Gen'us** (Lat., a race), the smallest natural group containing distinct species; large genera are frequently for the sake of convenience divided into sections, but the generic name is applied to all species; ~ **Hy'brid**, a hybrid between two genera, a bigener or bigeneric cross.

**Ge'oblast**, *Geoblas'tus* (*γῆ*, the earth, *βλαστὸς*, a bud), an embryo whose cotyledons remain under ground in germination as the pea.

**geocal'ycal**, resembling the Hepatic genus *Geocalyx*, Nees; marsupial.

**Geoaethe'sia** (*γῆ*, the earth, *αἴσθησις*, perception by sense), the capacity of a plant to respond to the stimulus of gravity.

**geograph'ic** (*γραφή*, writing), descriptive of the earth or a portion thereof; ~ **Bot'any**, that department which takes account of the ~ **Distribu'tion** of plants over the earth's surface; **geolog'ic** (*λόγος*, discourse) **Bot'any** = Palaeobotany or Fossil Botany; **geoph'ilous** (*φιλέω*, I love), earth loving, used of such plants as fruit underground; ~ **Fun'gi**, those which grow saprophytically on decaying vegetable matter on the ground; **Ge'ophytes** (*φυτὸν*, a plant), applied by Areschoug to those plants which produce underground buds, without partial development there; **geonyctitrop'ic** (*νύξ*, *νυκτὸς*, night, *τροπή*, a turning), sleep-movements requiring also the stimulus of gravity; **Geotax'is** (*τάξις*, order), movement in plants caused by gravity (Czapek); **Geothermom'eter** (*θερμὸς*, warm, *μέτρον*, a measure), a thermometer for earth temperatures; **Geotort'ism** (*tortus*, twisted), torsion caused by the influence of gravitation (Schwendener and Krabbe); **Geot'rophy** (*τροφή*, food), unilateral inequality in growth due to position with regard to gravity (Wiesner); **geotrop'ic** (*τροπή*, a turning), relating to the influence of gravity on growing organs; **Geot'ropism**, the force of gravity as shown by curvature in nascent organs of plants; **neg'ative** ~ growing away from the earth, as stems do normally; **pos'itive**, growing towards the earth's centre, as roots; **trans'verse** ~, = DIAGEOTROPISM.

**Germ** (*germen*, a bud), (1) a bud or growing point; (2) the ovary or young fruit; (3) a reproductive cell, especially in bacteria; ~ **Cell**, (1) a female reproductive cell; (2) a spore of the simplest character, a sporidium (Brefeld); ~ **Nu'cleus**, the nucleus resulting from the union of the pronuclei of two

gametes in conjugation; ~-**Plasm**, the assumed original generative substance contained in the body of the parent from which new individuals arise; *cf.* SOMA-PLASM (Weismann); ~ **Pore**, a pit on the surface of a spore-envelope through which a germ-tube makes its appearance; ~ **Tube**, a tubular process from a spore developing into a hypha, and then into a mycelium or promycelium.

**German'ic**, Watson's term for a type of distribution in Great Britain of those plants whose headquarters are in the eastern portions of the kingdom.

**Ger'men** (Lat., a bud), (1) Linnaeus's term for the ovary; (2) formerly used for the capsule of Mosses; (3) by Pliny and later writers it signified a bud generally; **Ger'micide** (*-cida*, a killer), an agent which causes the death of bacteria or spores; *cf.* SPOROCIDE; **Germicul'ture** (+ CULTURE), the practice of bacteriology; **ger'minable** (+ able), capable of germinating; viable; **ger'minal**, relating to a bud; ~ **Appara'tus**, = EGG-APPARATUS; ~ **Cor'puscle** = OÖSPHERE; ~ **Dot**, of Diatoms, the centrosome (?); ~ **Lid**, a separable area of a pollen-grain, breaking away to permit a pollen-tube to issue; ~ **Pro'cess** ‡ a part belonging to or proceeding from an ovary (Lindley); ~ **Slit**, a small break in the seed-coat of Scitamineae; ~ **Ve'sicle**, = OÖSPHERE; **Germina'tion**, *Germina'tio*, the first act of growth in a seed; sprouting; **germ'inative Nu'cleus** = NUCLEUS, GENERANATIVE.

**gerontogae'ous**, *-aeus* (*γέρων*, *γέροντος*, an old man, *γῆ*, the earth), used of plants which are confined to the Old World.

**gib'ber** (Lat., hump-backed), **gib'bose**, **gib'bous**, *gibbero'sus*, more convex in one place than another, a pouch-like enlargement of the base of an organ, as of a calyx; **Gibbos'ity**, *Gibbos'itas*, a swelling at the base of an organ.

**gigan'tic**, *gigan'teus* (Lat., pertaining to giants), of unusual height.

**Gills**, the plates or lamellae of an Agaric which bear the spores.

**gil'vus** (Lat.), pale yellow, a term of confused application, sometimes reddish or even greyish.

**Ginger-beer** "plant," an association of organisms which ferment a sweetened liquid into Ginger-Beer.

**Gir'dle**, (1) the hoop or cingulum of Diatoms, that portion of the frustule which unites the valves; (2) also applied to a ring-like branch of the leaf-trace of *Cycas*; **Gird'ling**, in cultivation, ringing.

**githagin'eus** (Lindley); **githagino'sus** (Hayne), defined as greenish red, meaning red or purple streaks on a green ground, as the calyx of *Githago*.

**gla'brous**, *gla'ber* (Lat., without hair), **gla'brate**, *glabra'tus*, destitute of pubescence, by Bentham extended to mean also destitute of any roughness; **glabres'cent**, *glabres'cens*, becoming glabrous, or slightly so; **Gla'brism**, the smoothness of normally hairy parts; **glabrius'culus** (Lat.), somewhat glabrous.

**gla'diate**, *gladia'tus* (*gladius*, a sword) (1) flat, straight, or slightly curved, with acute apex and approximately parallel edges, ensiform; (2) ancipital.

**Gland** (*glans*, *glandis*, an acorn); (1) an acorn, or acorn-like fruit; (2) a definite secreting structure on the surface, embedded, or ending a hair; any protuberance of the like nature which may not secrete, as the warty swellings at the base of the leaf in the cherry and peach; (3) in Orchids, see GLANDULA; ~ of the **Torus**, see LEPAL (Crozier); **glandula'ceous**, *-ceus* (+ aceous), the colour of a ripe acorn; raw sienna yellow; **glandif'erous** (*fero*, I bear), bearing or producing glands; **gland'iform** (*forma*, shape),

shaped like a gland ; **Gland'ula, Gland'ule**, a viscid gland in Orchids and Asclepiads, which holds the pollen-masses in their place ; the retinaculum ; **glan'dular**, possessing glands ; ~ **Disk**, = GLANDULA ; ~ **Hair**, an epidermal appendage, the end of which is usually enlarged, and contains a special secretion ; ~ **Wood'y Tis'sue**, coniferous pitted tissue ; **Glandula'tion**, *-tio*, the arrangement of the glands on a plant ; **glandulif'erous**, *-rus*, gland-bearing ; **glan'dulose**, *glandulo'sus*, **gland'ulous**, glandular ; **glan'dulo-so-serra'tus**, having serrations tipped or bordered with glands ; **Glans** (Lat.), a fruit one-seeded by abortion, or a few-seeded dry inferior indehiscent pericarp seated within a cupular involucre, as the fruit of the oak, nut, etc.

**gla'real** (*glarea*, gravel), term employed by H. C. Watson for those plants which grow on dry exposed ground, chiefly gravel or sand ; **gla'reose**, *glareo'sus*, frequenting gravel.

**glauces'cent**, *glauces'cens* (γλαυκὸς, bluish grey), becoming sea-green ; **glauci'nus** (Lat.), bluish sea-green ; **glau'cous**, *-cus* (1), sea-green ; (2) covered with a bloom as a plum or cabbage-leaf.

**Gle'ba** (Lat., a clod), the chambered sporogenous tissue within a sporophore of Phalloideae ; **Gle'bula** (1) a synonym of GLEBA ; (2) the sporangia of certain Fungi, as *Nidularia ;* (3) a rounded elevation on the thallus of Lichens.

**Gli'adin** (γλία, glue), vegetable glue or gelatin forming part of gluten ; **Gli'an**, the alcohol-soluble part of gluten.

**Gli'ding-growth** = SLIDING GROWTH.

**glit'tering**, lustre from a polished surface which is not uniform.

**glo'bate** (*globus*, a sphere), globular ; **Globes**, Grew's term for pollen-grains ; **Glo'bi spermat'ici**, spores of some Fungi (Lindley) ; **Glo'boids** (εἶδος, like), rounded masses of mineral matter in proteid grains ; **glo'bose**, *globo'sus*, nearly spherical ; **glob'ular**, *globula'ris*, spheroidal in shape ; **Glob'ule**, the spherical antheridium in Characeae ; **Glob'ulet**, used by Grew for (1) a glandular hair, (2) a pollen-grain ; **Glob'ulin**, (1) "round transparent granules in cellular tissue, constituting fecula" (Henslow) ; (2) the chief ingredient in aleurone or protein granules, occurring amorphous or as crystalloids ; (3) in Lichens = Chlorophyll (Olivier) ; **Glob'ulus** (Lat. a little globe), (1) used by Necker for the fruit of Hepaticae ; (2) the deciduous shield in some Lichens ; soredia.

**Glo'chid, Glochid'ium** (γλωχίς, an angular end or barb), (1) a barbed hair or bristle ; (2) a similar structure on the massulae of certain Cryptogams which act as organs of attachment to a macrospore ; **glochid'eous**, *-eus*, **glochid'iate**, *glochidia'tus*, pubescent with barbed bristles ; **Glo'chis**, a barb.

**Gloeoli'chenes** (γλοιός, sticky), Forsell's name for homoeomerous Lichens, as Collemacei, Ascolichenes with gonidia belonging to the Chroococcaceae ; **Gloe'ophyte** (φυτὸν, a plant), Gobi's name for THALLOPHYTE ; **Gloiocar'pus** (καρπὸς, fruit), a tetraspore (Lindley).

**Glome** (*glomus*, a ball), a rounded head of flowers ; **glom'erate**, *glomera'tus*, agglomerate, collected into heads ; **Glom'erule**, *Glomeru'lus*, (1) a cluster of capitula in a common involucre, as *Echinops ;* (2) a SORÉDIUM ; **glomerulif'erous** (*fero*, I bear), bearing clusters of coral-like excrescences ; **glomer'ulose**, having glomerules ; **Glom'us** ‡ = GLOMERULE.

**Glossol'ogy** (γλῶσσα, a tongue, λόγος, discourse), the explanation of technical terms ; **Glos'sopode, Glossopod'ium** (πούς, ποδὸς, a foot), the sheathing base of the leaves in *Isoëtes* ; adj. **glossopod'ial.**

**Glu'case** (γλυκὺς, sweet), an enzyme

which hydrolyses maltose; **Glu'cose**, (1) a group of carbohydrates, crystallisable and soluble in water, occurring in fruits, as grape-sugar, etc., see DEXTROSE, LEVULOSE; (2) also a commercial term for syrups made from starch or grain; **Glu'coside**, (*εἶδος*, like), for complex substances which give rise on decomposition to Glucose, such as Amygdalin, Coniferin, Salicin; ~ **En'zyme**, a ferment such as Synaptase or Emulsin.

**Glue**, viscid secretion on surface of some plants; **Bud** ~ = BLASTOCOLLA.

**gluma'ceous** (*gluma*, husk of corn, + aceous), resembling the glumes of grasses, as the perianth-segments of *Juncus;* **Glume**, *Glu'ma*, the chaffy two-ranked members of the inflorescence of grasses and similar plants; **barren** ~, **em'pty** ~, glumes which subtend a spikelet, and do not include a flower; **fer'tile** ~, **flor'al** ~, **flower'ing** ~, the glume in grasses which includes a flower, the palea; **fruit'ing** ~, the fertile glume at the time of maturity; **ster'ile** ~, a glume which subtends other glumes or has no flower; **glu'mal**, characterized by having a glume; **Glumel'la**, **Glu'melle**, (1) the palea of grasses; (2) the lodicule of the same (Richard); **glumellea'nus** ‡ of or belonging to a glumella; **Glumel'lule**, *Glumellu'la*, (1) = palea; (2) = lodicule; **glu'mous**, having glumes, as a flower which has a subtending glume.

**Glu'tamin** (*gluten*, glue), an amide allied to asparagin found with it in the juice of beets, etc.; **Glu'ten**, a tough protein substance occurring in grain after the removal of the starch; ~ **Cells**, of the endoderm contain oil, but no starch; **Glutin'ium**, "the flesh of certain Fungals" (Lindley); **glu'tinous**, *glutino'sus*, covered with a sticky exudation.

**Gly'case** (*γλυκύς*, sweet), an enzyme, the same as GLUCASE.

**Glycerrhiz'in**, or **Gly'cion**, a saccharine matter from the roots of *Glycyrrhiza glabra*, Linn., liquorice.

**Glycodru'pose** (*γλυκύς*, sweet, + DRUPOSE), a lignocellulose, forming the hard concretions in the flesh of pears; **Gly'cogen** (*γεννάω*, I bring forth), a carbohydrate present in quantity in epiplasm, capable of being converted into glucose; ~ **Mass**, protoplasm permeated with glycogen, epiplasm; **Glycolig'nose** (*lignum*, wood), a presumed glucoside, from pinewood.

**Gnaurs**, burrs or knotty excrescences on tree-trunks or roots, probably from clusters of adventitious buds.

**gnawed**, = EROSUS.

**gnomon'ical**, *gnomon'icus* (*γνώμων*, the pin of a dial), an appendage when abruptly bent at an angle to its attachment.

**gob'let-shaped** = CUP-SHAPED.

**Gonang'ium** (*γόνος*, offspring, *ἀγγεῖον*, a vessel), a spherical Colony of *Palmella*, etc., overgrown with thick-walled brown Lichen-hyphae; **goneoclin'ic** (*κλίνη*, a bed), applied to a hybrid which approximates to one parent, and not intermediate.

**gongrosi'roid**, resembling the genus *Gongrosira*, Kuetz.; applied to the resting-stage of *Vaucheria*.

**gongylo'des** (*γογγύλος*, round), knob-like; **Gong'ylus** (1) for round corpuscles on certain Algae, which become detached, and germinate as separate individuals; (2) globular bodies in the thallus of Lichens; (3) = SPORE, SPORIDIUM, SPEIREMA.

**goniautoi'cous** (*γόνος*, offspring, *αὐτός*, self, *οἶκος*, a house), the male inflorescence of a Moss, bud-like and axillary on a female branch; **Gon'id**, proposed abbreviation of GONIDIUM; **Gonidan'gium** (*εἶδος*, like, *ἀγγεῖον*, a vessel), in a gametophyte, the organ which produces a sexual spore or gonidium; **Gonid'iophore** (*φορέω*, I carry), a sporophore which bears a gonidium; **Gonid'ium** (1) in Lichens, an algal cell of the thallus; (2) the same as

Brood-cell, a propagative cell, asexually produced and separating from the parent; **gonid'ial**, pertaining to gonidia, as ~ **Lay'er**, (1) an aggregation of simple gonidiophores to form a cushion-like layer or crust; (2) the algal layer in the Lichen-thallus; **Gonide'ma**, Minks's term for the gonidial layer.

**Gonim'ia**, pl. of **Gonim'ium** (*γόνιμος*, productive), the gonidia in Lichens; **gonim'ic**, relating to gonidia, as ~ **Lay'er**, the algal layer in the Lichen-thallus; **Gon'imoblast** (*βλαστὸς*, a shoot), filaments which are often clustered, arising from the fertilized carpogonium of certain Algae; **Gon'imolobes** (*λοβὸς*, a lobe), the terminal tufts of gonimoblasts; **Gon'imon**, Wallroth's term for the gonidial layer; **gon'imous**, relating to gonidia.

**Gon'ocysts** (*γόνος*, offspring, *κύστις*, a bag), used by Minks for metamorphosed gonidia extruded on the superficial crust, having a peculiar appearance; **Gono-hyphemia** (*ὕφα*, woven), applied by Minks to the hyphal layer of Lichens; **Gon'ophore**, *Gonoph'orum* (*φορέω*, I carry), an elongation of the axis, a receptacle bearing stamens and carpels, as in *Capparis*; **Gon'oplasm** (*πλάσμα*, moulded), in Peronosporeae, that portion of the protoplasm of the antheridium which passes through the fertilization tube and coalesces with the oösphere; **Gonotax'is** (*τάξις*, order), the movement of antherozoids towards the female organ (Macmillan); adj. **gonotac'tic**; **Gonot'ropism** (*τροπὴ*, a turning), Macmillan's term for the motion of antherozoids and pollen-tubes towards the female organ; the author also suggests the restriction of this term to pollen-tube growth; adj. **gonotrop'ic**; **Gon'osphere**, **Gonosphae'rium** (*σφαῖρα*, a sphere), = OÖSPHERE; **Gonosphaerid'ium**, = GONIDIUM (?)

**Gorge**, the throat of a flower.

**gos'sypine**, *gossypi'nus*, cottony, flocculent, like the hairs on the seeds of *Gossypium*.

**Gourd**, a fleshy, one-celled, many-seeded fruit, with parietal placentas, as a melon.

**grac'ilis** (Lat.), slender; Crozier has the needless word "gracile."

**Graft**, a union of different individuals by apposition, the rooted plant being termed the stock, the portion inserted the scion; ~ **Hy'brid**, effect produced by one or the other of the united individuals on its grafted fellow; **Graft'age**, L. H. Bailey's term for multiplication by grafting or the state of being thus increased.

**Grain**, a general term for cereals, those grasses cultivated for food; the caryopsis or the fruit of the same; **grained**, having grain-like tubercles or processes, as in the flowers of *Rumex* (Crozier).

**gramina'ceous**, **gramin'eal** (*gramen*, grass), synonyms of **gramin'eous**, *-eus*, **gra'minous**, (1) relating to grass or grain-bearing plants; (2) grass-coloured; **graminic'olous** (*colo*, I inhabit), growing on grasses, as some Fungi; **graminifo'lious**, (*folium*, a leaf), having grass-like leaves; **Graminol'ogy** (*λόγος*, discourse) = AGROSTOLOGY (Crozier).

**gram'micus** (Lat.), (*γραμμικὸς*, lined), lettered, marked as though inscribed; **grammopod'ius** ‡ (*πούς*, *ποδὸς*, a foot or stem), having a striped stalk.

**Gra'na**, pl. of **Gra'num** (Lat.), a seed, (1) any small bodies; (2) the coloured drops in chloroplasts (Strasburger); ~ **tetras'ticha**, "the spores of certain Fungals" (Lindley).

**granati'nus** (Lat.), pale scarlet, the colour of the flower of *Punica Granatum*, Linn., the pomegranate.

**Granif'erus** (*granifer*, grain-bearing), a synonym of Monocotyledon (Henslow).

**gra'niform** (*granum*, a grain, *forma*,

shape), having the shape of grains of corn.

**granit'icus** (Mod. Lat.), applied to plants growing on granite rocks, as certain Lichens.

**Gran'ule**, *Gran'ula* (*granum*, a grain), (1) any small particles, as pollen, chloroplasts, etc.; (2) the Naviculae of *Schizonema* (fide Lindley); (3) sporangia in Fungi (Lindley); (4) by Frommann used for the nucleolus-like structure in the nucleus of the terminal cells of the glandular hairs of *Pelargonium zonale*, Ait.; **Gran'ula gon'ima**, the gonidia in Lichens; **gran'ular**, *granula'ris*, (1) composed of grains; (2) divided into little knots or tubercles, as the roots of *Saxifraga granulata*, Linn.; **gran'ulate**, *granula'tus*, means the same thing; **granulif'erous** (*fero*, I bear), granule-bearing; **gran'ulose**, *granulo'sus*, composed of grains;—used as a substantive by Naegeli for true starch.

**Grape-sugar**, a sugar found abundantly in the grape, dextrose.

**Grascila'tio** (Mod. Lat.), used by Desvaux for ETIOLATION.

**Grass-green**, clear lively green, in Latin, prasinus, gramineus.

**Grav'eolence** (*graveolentia*, a rank smell), a smell so strong as to be unpleasant; **grav'eolent**, *grav'eolens*, strongly scented, of intense and heavy odour.

**Gravita'tion** (*gravitus*, weight), the act of tending towards a centre, as of the earth; in botany sometimes confused with Geotropism and Apheliotropism.

**greasy**, oily to the touch.

**Green-rot**, a disease in wood, the tissues becoming verdigris green, ascribed to *Peziza aeruginosa*, Pers.

**Greffe** (Fr.) graft; ~ **des Charlatans**, a fraudulent apparent graft, the scion being passed through a hole bored in the stock.

**gregar'ious** (*gregarius*, belonging to a flock), growing in company, associated but not matted.

**grey**, *gris'eus* (Lat.), cold neutral tint, varied in tone.

**grisel'lus**, *gris'eolus* (Lat.), diminutive of foregoing, somewhat greyish.

**Grit-cell**, a sclerotic cell, as in the flesh of pears.

**gromon'ical**, an error of Lindley's for gnomonical.

**Grossifica'tion** (*grossus*, thick, *facio*, I make), the swelling of the ovary after impregnation; **gros'sus** (Lat.), coarse, larger than usual, used adverbially as **gros'se-crena'tus**, ~ **serra'tus**, coarsely crenate or serrate.

**grossula'ceous, gros'sular**, relating to the gooseberry, *Ribes Grossularia*, Linn.; **Gros'suline**, a principle found in certain acid fruits.

**Ground-tissue**, applied to the pith, cortex, and medullary rays.

**Grow'ing-point**, the extremity of the stem, or cone of growth, the seat of the activity of the apical cell, and its divisions.

**Growth**, increase by new cell-formation or extension of old cells; ~ **Form**, a vegetative structure marked by some characteristic feature which does not indicate genetic affinity; a tree, shrub, sprout-fungus, are growth-forms; ~ **Ring**, the annual rings of growth in exogens.

**Grub'bing**, in forestry, the uprooting of trees.

**gruinal'is** (*grus*, a crane), shaped like the bill of a crane, as the fruit of *Geranium*.

**gru'mose**, *grumo'sus*, **gru'mous** (*grumus*, a hillock), divided into little clusters of grains.

**Grund-Form** (Germ.), the original form, sometimes hypothetic, from which other forms have been derived by morphologic variation.

**Guar'anine**, a bitter principle from Guarana bread, or Brazilian cocoa, isomeric with caffeine.

**Guard-cells, Guard'ian-cells**, in stomata, two cells which open or close the stoma by their greater or less turgescence.

**gu'lar** (*gula*, the throat), pertaining to the throat (Crozier).

**Gum**, (*gummi*, gum), a viscid secretion frequently extruded from stems, and hardening in the air; ~ **Ar'abic**, derived from species of *Acacia* in tropical countries, dissolving easily in water; ~ **Cells**, Germ. Kleberzellen, see OIL-CELLS; ~ **Lac**, excretion by insects, *Carteria Lacca*, from various trees; ~ **Pas'sage**, an intercellular passage containing gum; ~ **Res'in**, exudation partaking of the nature of gum and resin; **gummir'erous** (*fero*, I bear), producing gum; **Gum'ming**, a disease, known also as **Gummo'sis**, producing gum in excess.

**Gus'set**, an intercellular space, at an angle where more than two cells meet (Crozier).

**Gut'ta-per'cha** (*gutta*, a drop), a kind of chaoutchouc, said to be derived from *Dichopsis Gutta*, Benth. and Hook.f.; **gut'tate** (*gutta'tus*, spotted), as to colour; **Gutta'tion** the exudation of drops of fluid; **Gut'tifer** (*fero*, I bear), a plant which produces gum or resin (Crozier), adj. **guttif'erous**; **gut'tulate**, resembling drops of oil or resin; **Gut'tule**, used for drops of oil (?) contained in the capitate paraphyses of Fungi.

**gyalec'tiform** (*forma*, shape), urceolate, like the genus *Gyalecta*, now merged in *Lecidea*; **gyalec'tine**, and **gyalec'toid** (εἶδος, like), are synonyms.

**gymnan'thous**, *-us* (γυμνός, naked, ἄνθος, a flower), naked-flowered; **Gymnax'ony** (ἄξων, an axle), Morren's term for the placenta protruding through the ovary; **gymnoblas'tus** (βλαστός, a bud), having the ovary superior; **gymnocar'picus**, **gymnocar'pous**, *-us* (καρπός, fruit), (1) naked fruited; where the perianth does not adhere to the outer integument; (2) where the fruit is without pubescence (Henslow); (3) when the hymenium is exposed during the maturation of the spores; **Gymnocid'ium** ‡ (ὄγκιδιον, tubercle), Necker's term for the swelling sometimes formed at the base of the capsule in Mosses, the apophysis; **Gymnog'amae** (γάμος, marriage), Ardissone's term for Heterosporous and Isosporous Cryptogams; **Gym'nogen** (γεννάω, I bring forth), = GYMNOSPERM; **gymnog'ynous** ‡ (γυνή, a woman), having a naked ovary; **Gymnosper'mae** (σπέρμα, seed), **Gymosper'mia**, (1) the Linnean order Didynamia, plants having four nutlets, taken for naked fruits, as Labiates; (2) the modern order of naked-ovuled plants, as conifers; **gymnosper'matous**, relating to conifers and their allies, recent and fossil; **gymnosper'mous**, the ovules developed without the usual tegumentary pericarp, as in Coniferae; opposed to Angiospermous; **Gymnosper'my**, the state of bearing really or apparently naked fruit; **Gym'nospore**, a naked spore, one not produced in a sporangium; **gymnos'tomous** (στόμα, a mouth), applied to the peristome of Mosses when destitute of teeth; **gymnotetrasper'mus** ‡ (τετρὰς, four, σπέρμα, seed), having a four-lobed ovary, as in Labiates, once considered to be naked; **gymnotre'moid** (τρῆμα, a hole, εἶδος, like), a bare open spot or space (Leighton).

**Gynae'ceum** (γυναικεῖον, the women's house), the pistil or pistils of a flower; the female portion as a whole.

**gynan'der** (γυνή, a woman, ἀνήρ, ἀνδρός, a man), **gynan'drous**, when the stamens are adnate to the pistil, as in Orchids, etc.; **Gynan'dria**, a Linnean class, with gynandrous flowers; adj. **gynan'drian**; **Gynan'drophore** (φορέω, I carry), a column bearing stamens and pistils; **gynandrosp'orous** (σπορά, seed), dioecious forms of Oedogoniae in which the female plant produces androspores; **gynan'therous**, *-us* (+ ANTHER), used of stamens converted into pistils; **Gyne'cium** = GYNAECEUM;

**Gynix'us, Gyni'zus** (*ἰξός*, birdlime), the stigma in Orchids; **Gy'nobase, *Gynob'asis*** (*βάσις*, a pedestal), an enlargement of the torus on which the gynaeceum rests; **gynobas'ic**, applied to a style which adheres by its base to a prolongation upwards of the torus between carpels; **Gynocid'ium**, an error for GYMNOCIDIUM; **gynodioe'cious**, dioecious, with some flowers hermaphrodite, others pistillate only, on separate plants; **gynody'namus** (*δύναμις*, power), applied to an organism where the female element is preponderant; **Gynoe'cium** = GYNAECEUM; **Gynogametan'gium** (*γαμέτης*, a spouse, *ἀγγεῖον*, a vessel), an organ in which female sexual cells are formed; an archegonium; **Gynogam'etes**, egg-cells (McNab); **Gynogam'etophore** (*φορέω*, I carry), the female gametophore; **Gynomonoe'cious**, monoecious, with female and hermaphrodite flowers on the same plant; **Gynomonoe'cism** is the condition; **Gy'nophore, *Gynophor'ium*** (*φορέω*, I carry), the stipe of a pistil; adj. **gynophora'tus** ‡ **gynophoria'nus** ‡; **Gynophyl'ly** (*φύλλον*, a leaf), virescence or phyllomorphy of the ovary; **Gy'nophyte** (*φυτόν*, a plant), the female plant in the sexual generation; **Gynosteg'ium** (*στέγος*, a roof), the staminal crown in *Asclepias*; **Gynoteg'ium** (*τέγος*, a roof), the sheath or covering of a gynaeceum of any kind; **Gynoste'mium** (*στήμων*, a stamen), the column of an Orchid, the androecium and gynaeceum combined.

**gyp'seus** (Lat., plastered with lime), chalk-white, cretaceous.

**gy'rate, *gyra'tus*** (Lat.), curved into a circle, or circular; circinate.

**Gy'rolith** (*γύρος*, round, *λίθος*, stone), the presumed fossil fruits of *Chara*; **Gy'roma** (1) the annulus of Ferns; (2) the button-like shield of *Gyrophora*; **gy'rose, *gyro'sus***, curved backward and forward in turn; **Gy'rus** (Lat., a circle) = GYROMA.

**Hab'it, *Habi'tus*** (Lat., appearance), the general appearance of a plant, whether erect, prostrate, climbing, etc.

**Hab'itat, *Habita'tio*** (Lat., dwelling), (1) the kind of locality in which a plant grows, as woods, moors, etc.; (2) the geographic distribution or limits, now termed LOCALITY, or more precisely STATION; ~ **Group**, applied to those plants which have common habitats, though not related, as HALOPHYTES, HYDROPHYTES, and the like; ~ **Ra'ces**, used by Magnus for those heterœcious Uredines, which are adapted to respective species of host (Tubeuf).

**Had'rome**, a shortened form of **Hadromes'tome** (*ἁδρός*, thick, ripe, strong, *μεστός*, filled), the xylem or woody portion of a vascular bundle; consisting of the HYDROME and part of the AMYLOME; together with the LEPTOME it forms the MESTOME.

**Hae'matein** (*αἷμα, αἵματος*, blood), the colouring matter of Logwood; **haemati'nus, haem'atites, haematit'ic, *haematit'icus*, haematochro'os** (*χρώς*, a tinge), blood-red; **Haematochro'me** (*χρῶμα*, colour), Cohn's term for the pigment of *Haematococcus pluvialis*, etc.; **Haematox'ylin** (*ξύλον*, wood), the colouring matter of Logwood, *Haematoxylon campechianum*, Linn.; **Haemorrha'gia** (*ῥαγία*, from *ῥήγνυμαι*, to break forth), a disease in plants when the sap is constantly exuding through an external wound.

**Hair**, an outgrowth of the epidermis, a single elongated cell, or row of cells; ~ **-point'ed**, ending in a fine, weak point; ~ **-shaped**, filiform, very slender, as the ultimate divisions of the inflorescence of many grasses; **Hair-breadth** = CAPILLUS; **Hair'iness**, hirsute, more rigidly hairy than pubescent; **hair'y**, pubescence when the hairs are separately distinguishable.

**hal'berd-**, or **hal'bert-shaped**, hastate; ~ **-headed**, means the same.

**Half** (1) a moiety; one part of that which is divided into two equal

portions ; (2) sometimes it means one-sided, dimidiate; ~ **anat'ropous**, amphitropous ; ~ **Breed**, the product of a cross-fertilization ; ~ **cor'date**, heart-shaped on one side, ~ **cylin'dric**, applied to a stem flattened on one side ; ~ **equ'itant**, partially equitant ; ~ **infe'rior**, used of an ovary when the stamens are perigynous ; ~ **monopet'alous**, the petals united, but so slightly as to separate easily ; ~ **moon-shaped**, semilunate, crescent-like ; ~ **net'ted**, when of several layers, only the outer is netted, as the corm of *Gladiolus communis*, Linn. ; ~ **stem-clasp'ing**, partly amplexicaul ; ~ **supe'rior**, the same as half-inferior ; ~ **terete'**, flat on one side, terete on the other :—**Half-Galtonian-curve**, see NEWTONIAN CURVE.

**Halm**, see HAULM.

**halona'tus** (*ἅλως*, the disk of the sun, halo), when a coloured circle surrounds a spot.

**haloph'ilous** (*ἅλς*, *ἁλὸς*, salt, the sea, *φιλέω*, I love), salt-loving ; **Hal'ophyte** (*φυτὸν*, a plant), a plant which grows within the influence of salt water ; adj. **halophyt'ic**.

**Hal'ospore**, an error for HAPLOSPORE.

**halved**, dimidiate.

**ha'mate**, *hama'tus* (Lat., hooked), hooked at the tip ; **ha'mose**, **ha'mous**, *hamo'sus*, hooked ; **ham'ulate**, *hamula'tus* ; **ham'ulose**, *hamulo'sus*, beset with small hooks ; **Ha'mulus**, a hooked bristle in the flowers of *Uncinia* ; **Ha'mus**, a hook.

**Han'dle**, the manubrium of the antheridium of Characeae.

**hapaxan'thic**, **hapaxan'thous** (*ἅπαξ*, once, *ἄνθος*, a flower), used of herbs having a single flowering period.

**haplochlamyd'eous** (*ἁπλόος*, single, *χλαμὺς*, a mantle), monochlamydeous, having a single perianth ; **haplogen'eus** (*γεννάω*, I bring forth), = heteronemeus ; **Haplogonid'ium** (+ GONIDIUM), a Lichen gonidium resembling *Protococcus* ; **haploperist'omous** (+ PERISTOME), used of Mosses with a peristome of a single row of teeth ; **haplopet'alous**, *-lus* (*πέταλον*, a flower leaf), with one row of petals ; **Hap'lospore** (*σπορὰ*, seed), a simple spore in Lichens ; **haploste'monous** (*στήμων*, a stamen), with a single series of stamens in one whorl.

**Hap'teron**, pl. **Hap'tera** (*ἅπτω*, I fasten upon), Warming's term for organs of attachment which do not contain vascular tissue, as in Podostomaceae.

**Haptot'ropism** (*ἅπτομαι*, to attach oneself to), curvature induced in climbing plants by the stimulus of a rough surface (Czapek).

**hard'y**, enduring without protection ; not injured by the climate.

**has'tate**, *hasta'tus* (*hasta*, a spear), halbert-shaped, sagittate, with the basal lobes turned outward ; **has'tiform** (*forma*, shape), spear-shaped, hastate ; **has'tile**, *hasti'lis* (Lat., like the shaft of a spear), used for hastate.

**hatch'et-shaped**, dolabriform.

**Haulm**, **Halm**, **Haum**, (1) the culm of grasses ; (2) the stem of herbaceous plants.

**Haustor'ium** (*haustor*, a drawer), a sucker of parasitic plants ; used by Komarow for an appendage of perithecia.

**Haut'schicht** (Ger.), the layer of cell protoplasm known as ECTOPLASM.

**Head** (1) an inflorescence ; the capitulum of Composites ; (2) formerly used for the theca of Mosses ; ~ **Cell**, the capitulum of *Chara* ; **head'ed**, capitate.

**Heart**, used by Grew for the centre, as heart of oak, the duramen ; ~ **shaped**, cordate ; ~ **Wood**, the duramen.

**hebecar'pus** (*ἥβη*, puberty, *καρπὸς*, fruit), having the fruit covered with downy pubescence.

**heb'etate**, *hebeta'tus* (Lat., blunted), having a dull or blunt or soft point.

**hedera'ceous**, *hedera'ceus* (*Hedera*, ivy, + aceous, (1) pertaining to

ivy ; (2) resembling ivy in habit ; **hed'eral**, composed of ivy ; **hederif'erous** (*fero*, I bear), producing ivy.

**He'gemon** ‡ (*ἡγεμών*, a leader), fibro-vascular tissue.

**heliaca'lis** (*ἡλιακός*, belonging to the sun), heliacal ; spiral.

**Helichry'sin**, the yellow colouring matter of several species of *Helichrysum*.

**helic'iform** (*helix*, a snail, *forma*, shape), coiled like a snail shell ; **Hel'icocarp** (*καρπός*, fruit), Nicotra's term for a fruit whose constituent carpels are arranged in a spiral ; **helicogy'rate**, *helicogy'rates* (*gyratus*, turned in a circle), having a ring carried obliquely round, as the annulus in some Ferns ; **hel'icoid**, *helicoid'eus* (*εἶδος*, like), coiled into a helix, or like a snail-shell ; ~ **Cyme**, a sympodial inflorescence whose lateral branches are all developed on one side, a bostryx, or drepanium ; in some text-books this is erroneously called 'scorpioid' ; ~ **Dichot'omy**, when in two unequal branches, the more vigorous one is uniformly on the same side ; ~ **Inflores'cence**, when the flowers are in a single row ; ~ **unip'arous Cyme**, a bostryx ; **helicoi'dal**, spirally twisted, in the manner of a snail-shell.

**helioph'obic** (*ἥλιος*, the sun, *φοβέω*, I dread), shunning the light, negatively heliotropic ; **Helio'sis**, injury done by sun-burn ; **Heliotor'tism** (*tortus*, twisted), torsion caused by incidence of light (Schwendener and Krabbe) ; **heliotrop'ic** (*τρόπος*, direction), turning towards the light ; ~ **An'gle**, the angle of incidence at which light has the most stimulating effect ; **Heliot'ropism**, the act of turning towards the sun or source of light ; **neg'ative** ~, shunning light ; **pos'itive** ~, growing in the direction of the light ; **trans'verse** ~, = DIAHELOTROPISM.

**heliozo'oid** (*ἥλιος*, the sun, *ζῷον*, an animal, *εἶδος*, like), amoeboid, but having distinct ray-like pseudopodia.

**Hel'met**, = GALEA ; ~ **shaped** = galeate.

**helo'bious** (*ἕλος*, a marsh, *βίος*, life), living in marshes, paludal.

**Hel'otism** (*εἵλως*, a slave), Warming's term for the relation of the symbionts in the Lichen thallus.

**hel'volus** (Lat.), pale ochreous yellow ; **hel'vus** (Lat.), light bay, dun-colour.

**He'matine** = HAEMATIN.

**Hemeran'thy** (*ἡμερα*, day, *ἀνθέω*, I flower), day-flowering.

**hemi-** (*ἡμι*), in composition means half ; **Hemi-albumose'** (+ Albumose), a mixture chiefly of proto- and hetero-albumose ; **hemiangiocar'pous** (*ἀγγεῖον*, a vessel, *καρπός*, fruit), when the hymenium of some Fungi is for some time covered with a membrane, the gonidiophore is so termed ; **hemianat'ropous** (*ἀνά*, up, *τροπή*, a turn), half-anatropous, the ovule being partially bent back, half the raphe free ; hemitropous, amphitropous ; **Hemi-aut'ophyte** (+ AUTOPHYTE), chlorphyll-bearing parasites (Boulger) ; **Hem'icarp**, *Hemicarp'ium* (*καρπός*, a fruit), a half-carpel, a mericarp ; **Hemicell'ulose** (+ CELLULOSE), all carbohydrates present in the cell-wall which are not coloured blue by chlor-zinc-iodide, such as pectinaceous substances, reserve cellulose, etc. (Gilson) ; formerly termed Pseudocellulose ; **Hemicy'cle** (*κύκλος*, a circle), a half-circle, or half-coil ; **hemicy'clic**, partly in whorls, as the perianth leaves in whorls, and the sporophylls in spirals ; **hemicylin'dric** (*κύλινδρος*, a cylinder), (1) half-terete ; (2) a leafy expansion, plane on one side, convex on the other ; **Hemidystroph'ia** (*δυσ-*, bad, *τροφή*, nourishment), partial nourishment, semi-starvation in plants ; **Hemiep'iphyte** (*ἐπί*, upon,

φυτὸν, a plant), employed by Went for a plant which at first roots in the soil, afterwards developing aërial roots; **Hem'iform** (+ Form), used of heteroecious Fungi, having uredospores and teleutospores, the latter only germinating after a resting period; **hemigona'ris** ‡ (γόνος, offspring), employed when a part of both stamens and pistils are changed into petals; **Hemigy'rus** ‡ (γῦρος, round), = FOLLICLE; **hemisyngyn'icus** (σύν, with, γυνὴ, γυναικὸς, a woman), half-adherent (Lindley); **Hemipar'asite** (+ PARASITE), a facultative saprophyte, a parasite which can exist as a saprophyte; **Hem'iphyll** (φύλλον, a leaf), the hypothetic segment of a carpel; **ov'ular** ~, **placen'tal** ~, those which become modified into special parts of the ovary respectively, *cf.* TRIPHYLLOME; **Hemisap'rophyte** (σαπρὸς, rotten, φυτὸν, a plant), a facultative parasite; **hem'ischist** (σχιστὸς, split), in brood-cell formation when the nucleus only divides, the cytoplasm remaining whole (Hartog); **Hemitetracotyle'don** (τετρὰς, four, + COTYLEDON), De Vries's expression when both cotyledons are divided, or one normal and the other divided; **Hemite'ria** ‡ (τηρέω, I keep), "a monstrosity of elementary organs, or of appendages of the axis" (Lindley); **hemi'trichous** ‡ (θρὶξ, τρικὸς, hair), half covered with hairs; **Hemitricotyle'don** (τρεῖς, three, + COTYLEDON), used by De Vries, when one cotyledon is apparently divided into three; **hemit'ropal, hemit'ropous** (τρόπος, direction) (1) amphitropous, the axis of the ovule being more curved than the anatropous condition; (2) employed by M'Leod for flowers which are restricted to certain insects for honey-getting.

**Hemp**, the fibro-vascular tissue of *Cannabis sativa*, Linn.

**Hen-and-chickens**, proliferous flowers, the centre flower or head being surrounded by subsidiary flowers.

**Henslo'vian Mem'brane**, the cuticle; so named from Prof. Henslow's researches on the same.

**hepat'ic, hepat'icous**, *-cus* (Lat., diseased in the liver), liver-coloured, dark, purplish-red; **Hepaticol'ogist**, an expert in Hepaticae; **Hepaticol'ogy** (λόγος, discourse, the study of the Hepaticae or Liverworts.

**Heptagyn'ia** (ἑπτὰ, seven, γυνὴ, a woman), a Linnean class of plants having seven pistils; **heptagyn'ian**, possessing seven pistils; **heptam'erous** (μέρος, a part), having the parts in sevens; **heptan'der** (ἀνὴρ, ἀνδρὸς, a man), **heptan'drous**, having seven stamens; **Heptan'dria**, a Linnean order of plants with seven stamens; **heptan'drian**, relating to the same, or possessing seven stamens; **heptari'nus** (ἄρρην, male), Necker's term for HEPTANDROUS; **hep'tarch**, a fibro-vascular cylinder or stele with seven rays or bundles; **heptapet'alous** (πέταλον, a flower leaf), having seven petals; **heptaphyl'lous** (φύλλον, a leaf), with seven leaves.

**Herb**, *Herba* (Lat., grass, herbage, plant), a plant with no persistent stem above ground; **herba'ceous**, *-ceus*, (+ aceous), (1) with the texture, colour and properties of a herb; (2) with annual stems from a perennial root, as an ~ **Peren'nial**; **Herb'age**, herbs collectively, grass, pasture; **Herb'al**, (1) a volume containing descriptions of plants, such as John Gerard's "Herball"; (2) sometimes = HERBARIUM; **Herb'alist**, (1) a writer of herbals, one of the old botanists; (2) a person skilled in the knowledge of herbs; **Herb'arist**, an old word for botanist; **Herba'rium**, a collection of dried plants, formerly styled a "*hortus siccus*"; **Herb'elet, Herb'let**, a small herb; **herbes'cent**, growing into herbs; **Herb'orist**, a collector of plants for medical use; **Herboriza'tion**, a botanic excursion

for the collection of plants; **herb'orize**, to botanize.

**Hercog'amy** (*ἕρκος*, a fence, *γάμος*, marriage), applied to hermaphrodite flowers, when some structural peculiarity prevents self-fertilization, requiring insect-visitation; adj. **hercogam'ic, herkogam'ic, hercog'amous**, *-mus*.

**hermaph'rodite**, *hermaphrodi'tus* (Lat. having the characters of both sexes), the stamens and pistils in the same flower.

**Hered'ity** (*here'ditas*, heirship), possession by inheritance, of certain qualities or structures; **bisex'ual ~, unisex'ual ~**, having the qualities of both, or of one parent only transmitted.

**Her'pes** (*ἕρπης*, a cutaneous eruption) **tonsu'rans** (Lat., shaving), ringworm, a disease of the skin ascribed to *Trichophyton tonsurans*, Malm.

**Her'poblast** (*ἕρπω*, I creep, *βλαστός*, a shoot), Cramer's term for a confervoid prothallium lying flat on its substratum.

**Hesperid'ium** (from the golden fruit of the garden of the *Hesperides*), Desvaux's term for a fruit, such as the orange, a superior, polycarpellary, syncarpous berry, pulpy within, and externally covered with a tough rind; AURANTIUM of De Candolle.

**Hetae'rio** (*ἑταιρεία*, a brotherhood), a collection of distinct indehiscent carpels produced by a single flower, dry or fleshy, as in the Strawberry, Buttercup, Raspberry; usually spelled ETAERIO.

**Heterac'my** (*ἕτερος*, other, *ἀκμή*, apex), = DICOGAMY; **heteran'drous** (*ἀνήρ, ἀνδρός*, a man), applied to flowers whose stamens vary in size; **Heteran'dry**, the condition described; **Heterauxe'sis** (*αὔξησις*, growth), variation in the relative growth of opposite sides of an organ; **heterax'on** (*ἄξων*, a axle), applied by O. Mueller to a diatom if the transverse axes are unequal; **Heteroalbumose'** (+ ALBUMOSE), Kuhne's term for proteid, phytalbumose; **heteroblas'tic** (*βλαστός*, a shoot), applied to embryogeny which is indirect, the offspring not similar to the parent, but producing the adult form as an outgrowth, as in *Chara*; **heterocar'pous**, *-pus* (*καρπός*, fruit), producing more than one kind of fruit; **heterocar'picus** (fructus), "an inferior fruit" (Lindley; **Heterocar'py**, having two kinds of fruit; **heteroceph'alous**, (*κεφαλή*, the head), bearing two kinds of head or capitulum; **heterochlamyd'eous**, *-deus* (*χλαμύς*, a mantle), when the calyx and corolla clearly differ; **Heterochro'matism** (*χρῶμα*, colour), a change in the colouring or marking of petals; **heterochro'mous**, when the florets of the disk in Compositae differ in colour from those of the ray; **heterocis'mal**, an ill-contrived version of HETEROECIOUS; **het'erocline, heterocli'nous**, *-nus* (*κλίνη*, a bed), with the male and female members on separate receptacles.

**het'eroclite**, *heteroc'litus* (*ἑτερόκλιτος*, varying in declension), anomalous in formation.

**heterocy'clic** (*ἕτερος*, other, *κύκλος*, a a circle), used when the floral whorls are heteromerous, not uniform or isomerous; **Het'erocyst** (*κύστις*, a bag), large inert cells in the filaments of certain Algae, separating contiguous hormogonia; adj. **heterocyst'ous**; **Heterodi'ody** (*δίοδος*, a passage), Van Tieghem's term for the condition of those DIODES which are differentiated into MACRODIODES, and MICRODIODES; cf. ISODIODY; **heterod'romous**, *-mus* (*δρόμος*, a course), having spirals of changing directions, as in some tendrils, or phyllotaxis; **Heterod'romy**, with varied spirals; **heteroe'cious**, forms which pass through their stages of development on different hosts are so termed; metoecious is a synonym; **Heteroe'cism**, the condition of a heter-

oecious parasite; **Heteroe'cium** (*οἶκος*, a house), a Fungus which passes its stages on more than one host plant; a metoecious parasite; **heteroecis'mal**, should be HETEROECIOUS; **Het'eroecyst** (Crozier), = HETEROCYST; **heterog'amous**, *-mus* (*γάμος*, marriage), (1) bearing two kinds of flowers, as in Compositae, the florets of the ray may be neuter or unisexual, and those of the disk hermaphrodite; (2) an abnormal arrangement of the sexual organs (Masters); **Heterog'amy**, change of the function of male and female flowers, or in their arrangement; **heteroge'neous** (*γένος*, race), not uniform in kind; **Heterogene'ity**, dissimilarity of nature; **heterog'enous Induc'tion**, used by Noll to denote sensitive movements in which two different causes co-operate; **Heterogen'esis** (*γένεσις*, beginning), alternation of generations; **heterogenet'ic**, when applied to fertilization means cross-pollination; **Het'erogone** (*γονή*, offspring), a plant whose flowers are dimorphic or trimorphic in the length of the stamens or styles; adj. **heterog'onous**, *heterogo'neus*; **Heterog'ony**, the same as HETEROSTYLY, *cf.* HOMOGONY; **heteroi'cous**, a form preferred by some bryologists to the usual spelling HETEROECIOUS; **heteroi'deus** ‡ (*εἶδος*, like), diversified in form (Lindley); **heteromal'lous**, *-lus* (*μαλλός*, a fleece or tuft of wool) spreading in all directions; **heterom'alous** (Crozier). = the foregoing; **Heteromer'icarpy** (*μέρος*, a part, *καρπός*, fruit), Huth's term for a binary fruit, the halves of which differ from each other, as *Turgenia heterocarpa*, DC.; **heteromer'icus**, stratified, as in some Lichens; **heterom'erous** (1) when the number of the members is not uniform; (2) in Lichens, the opposite of isomerous; **heteromor'phic, heteromor'phous** (*μορφή*, form), (1) variation from normal structure, as deformities, etc.; (2) having organs differing in length, dimorphic, with long and short styles; trimorphic, with long, short, and medium length, the male organs (stamens) being of corresponding length; **heterone'meus** (*νῆμα*, a thread), applied to plants which on germination produce thread-like bodies, which afterwards unite, such as Bryophytes and Pteridophytes; **heterophyad'ic**, *heterophyad'icus* (*φυή*, growth), used of those species which have fertile stems of different form from the barren stems, as in some *Equiseta*; **heterophyl'lous** (*φύλλον*, a leaf), having leaves of different forms; **Heterophyl'ly**, used by Krasser, for two different forms of leaves, when caused by difference in organization; **Het'erophyte**, *Heterophy'tus* (*φυτόν*, a plant), (1) Trattinik's name for those plants which bear leaves and flowers on separate stems, as *Curcuma Zedoaria*, Rosc.; (2) Boulger's term for parasites destitute of chlorophyll; adj. **heterophy'tous**; **heteropo'lar** (*πόλος*, a pivot), for the axis of Diatomaceae when the extremities differ; **Heteropro'thally** (+ PROTHALLUS), Van Tieghem's term for the production of unisexual prothallia; **heterorhi'zal** (*ῥίζα*, a root), having roots or similar organs proceeding from any indeterminate portion of a spore in germination, or rooting from no fixed point; **Heterosper'my** (*σπέρμα*, seed), bearing two kinds of seeds, as in *Suaeda*, some species producing both seeds with endosperm, and other seeds destitute of it; **heteros'porous** (*σπορά*, seed), with spores of two kinds, as in *Selaginella*; **Heteros'pory**, the condition of producing microspores and macrospores, etc.; **het'erostyled, heterosty'lous** (+ STYLUS) = HETEROGAMOUS; **Heterosty'lia**, heterogamous plants; **Heterosty'lism**, having flowers differing in the styles, as Compositae when certain florets are unisexual and others hermaphrodite in the same

head ; **Heterosty'ly** = HETEROGAMY ; **Heterotax'y** (*τάξις*, arrangement), deviation, as the production of organs in situations where under normal conditions they would not be found ; **heterotop'ic** (*τόπος*, a place), used of plants found on soils apparently very diverse from their normal stations ; **heterot'ropal, heterot'ropous** (*τρόπος*, direction), (1) in ovules, the same as amphitropous ; (2) employed by Agardh for collateral ovules, back to back ; (3) lying parallel with the hilum ; **heterotroph'ic** *-us* (*τροφή*, food) ; **Heterot'rophy**, (1) used by Minks for those Lichens living symbiotically ; (2) by Wiesner for the compound position of a shoot with regard to the horizon and of the mother-shoot ; **Het'erotype** (*τύπος*, form, type), Flemming's term for a peculiar nuclear division connected with the reduction of the chromasomes, marked by the early fission of the chromatic thread, a special form of the chromosomes themselves (Farmer) ; adj. **heterotyp'ic** ; **heterox'enous** (*ξένος*, a host) = HETEROECIOUS.

**Hexacoc'cus** (*ἕξ*, six, *κόκκος*, a kernel), a fruit of six cells, as *Triglochin* ; **Hexagonienchyma** (*γωνία*, angle, *ἔγχυμα*, an infusion), cellular tissue which exhibits hexagonal cells in section ; **hexag'onus**, six-angled ; **hexag'onoid** (*εἶδος*, like), J. Smith's term for hexagonal areolae on Ferns, which are bordered by veins ; **Hexagyn'ia** (*γυνή*, a woman), a Linnean order of plants possessing six pistils ; **hexagyn'ian**, plants belonging to that order, or having its character ; **hexag'ynous**, with six pistils ; **hexalep'idus** (*λεπίς*, *λεπίδος*, a scale), six-scaled ; **hexam'erous**, *-rus* (*μέρος*, a part), in sixes ; **hexan'der** (*ἀνήρ*, *ἀνδρός*, a man), **hexan'drous**, with six stamens ; **Hexan'dria**, a Linnean class characterised by the possession of six stamens ; **hexan'drian**, relating to that class ; **hexapet'alous** (*πέταλον*, a flower leaf), with six petals ; **hexapet'aloid** (*εἶδος*, like), having a perianth of six pieces, which resemble petals ; **hexaphyl'lous**, *-lus* (*φύλλον*, a leaf), six leaved ; **Hex'apod** (*πούς*, *ποδός*, a foot), a fathom of six feet, used sometimes as a measure of altitude ; **hexap'terous**, *-rus* (*πτερόν*, a wing), six winged ; **hexapyre'nus** (*πυρήν*, a kernel), having six kernels ; **hex'arch** (*ἀρχή*, beginning), applied to a stele with six strands or origins ; **hexari'nus** (*ἄρρην*, male), Necker's synonym for hexandrous ; **hexasep'alous**, *-lus* (+ SEPALUM), with six sepals ; **hexaste'monous**, *-nus* (*στήμων*, stamen) hexandrous, six-stamened.

**hi'ans** (Lat.), gaping, as a ringent corolla.

**Hibern'acle, Hiberna'culum** (Lat., a winter room), (1) a winter bud ; (2) in botanic gardens, the winter quarters for plants, especially plant houses and frames ; **hiber'nal**, *hiberna'lis* (Lat.), pertaining to winter ; **Hiberna'tion**, passing the winter in a dormant state.

**Hiber'nian**, H. C. Watson's term for those plants of the United Kingdom whose head-quarters appear to be in Ireland (Hibernia).

**hid'den**, concealed from view ; **~ veined**, with veins which are not obvious, as in Pinks and House leeks, by excess of parenchyma.

**hide-bound**, a cultivator's expression when the bark does not yield to the growth of the stem.

**High-yeast**, barm, the yeast which forms at the surface ; *cf.* **low** or bottom yeast.

**hi'emal**, *hiema'lis* (Lat.), relating to winter.

**High'land**, used by Watson for a type of distribution in Great Britain, of those plants chiefly found in the Highlands of Scotland.

**hi'lar**, *hila'ris* (*hilum*, a trifle), relating to the hilum ; **Hile** (S. F. Gray) = HILUM ; **~ bear'ing**, marked with a hilum ; **hilif'erous**, *hil'ifer*, (*fero*, I bear), having a

hilum on the surface ; **Hilof'era**, the second or internal integument of a seed ; **Hi'lum** (1) the scar left on a seed where formerly attached to the funicle or placenta ; (2) the central point in a starch granule which the ring-like markings seem to surround ; (3) ‡ any point of attachment ; (4) ‡ an aperture in pollen grains.

**Hinge**, (1) the isthmus of Diatoms ; (2) in stomata, delicate lamellae of cellulose, upon which the mobility of the guard-cells usually depends ; they may form an inner or outer hinge ; in German, "Hautgelenk."

**hin'nuleus** (Lat., a young stag), a tawny cinnamon colour.

**hino'ideus** (h prefixed, *ἰνοειδής*, fibrous), used when veins proceed from the midrib and are parallel and undivided ; **venulo'so-** ~, the same, if connected by cross-veins.

**Hip**, the fruit of the rose ; technically a cynarrhodium.

**hippocre'piform**, *hippocrepiform'is* (*ἵππος*, a horse, *κρηπίς*, shoe, *forma*, shape), horse-shoe shaped.

**hirci'nus** (Lat., pertaining to a goat), smelling like a goat ; **hirco'sus** ‡ means the same.

**hir'sute**, *hirsu'tus* (Lat., rough, hairy), hairy, with long, tolerably distinct hairs ; **Hirsu'ties**, the hairiness just described; **hirtill'ous**, *-lus*, minutely hirsute ; **hir'tose**, used by R. T. Lowe for **hir'tus** (Lat.), hairy, practically the same as hirsute.

**his'pid**, *his'pidus* (Lat., bristly), beset with rough hairs or bristles ; **hispid'ulous**, *-lus*, minutely hispid.

**Histiol'ogy** (Crozier) = HIS'TOLOGY.

**Histodial'ysis** (*ἱστός*, a web, *διά*, through, *λύσις*, a loosing), the separation of the cells of a tissue from each other (Crozier) ; **Hist'ogen** (*γεννάω*, I bring forth), the origin of tissue ; **histogenet'ic**, **histogen'ic**, tissue-forming ; ~ **Plas'ma**, Weismann's term for tissue-forming protoplasm ; **Histogen'esis** (*γένεσις*, beginning), **Histog'eny**, formation or origin of tissue ; **Histol'ogy** (*λόγος*, discourse), the science of tissues.

**hiul'cus**, (Lat.) gaping, split.

**hoar'y**, canescent, grey from fine pubescence.

**Hochblätter** (Ger.) bracts.

**Hold'fasts**, the disc-like attachments of Algae.

**holera'ceous** (Crozier) = OLERACEOUS.

**Holobas'id** (*ὅλος*, whole, *basidium*, a little pedestal), an undivided basidium in Basidiomycetes (Van Tieghem) ; **holoblas'tic** (*βλαστός*, a bud or shoot), employed when the whole spore is concerned in the embryogeny, *cf.* MEROBLASTIC ; **Hol'ocarp** (*καρπός*, fruit), Nicotra's term for an entire fruit resulting from a number of carpels, it may be an apocarp or a syncarp, or an insensible blending of the two forms ; other divisions are actinocarp, and helicocarp, according as it is founded on a whorl or spiral ; and antispermic or pleurospermic according to the position of the placenta ; **holocarp'ic**, **holocarp'ous**, (1) having the pericarp entire ; (2) in simple Algae, the whole spore (individual) becomes a sporangium, and invested with a cell-wall; **Hologonid'ium** (*γόνος*, offspring), employed by Wallroth for the algal gonidia pure and simple, or soredia ; **holophyt'ic**, pertaining to **Holophy'tism** (*φυτόν*, a plant), the condition of a plant with its growth maintained entirely by its own organs, without any suspicion of saprophytism or parasitism ; **Holosap'rophyte** (*σαπρός*, rotten, *φυτόν*, a plant), employed by Johow for a true saprophyte, a plant which is dependent upon humus for its existence ; **holoseric'eous**, *-ceus*, (*sericeus*, silken), covered with a fine and silky pubescence.

**homalot'ropous** (*ὁμαλός*, even, *τροπή*, a turning), applied to organs which grow in a horizontal direction(Noll).

**homoblas'tic** (*ὁμός*, one and the same, *βλαστός*, a shoot), denotes embryogeny which is direct; **homocarp'ous**,

*-pus* (καρπός, fruit), having fruit of one kind only; **homocen'tric** (κέντρον = centre of a circle), concentric (Crozier); **homoceph'alic** (κεφαλή, a head), Delpino's term for homogamy when the anthers fertilise the stigma of another flower of the same inflorescence; **homochlamyd'eous** (χλαμύς, a mantle), the perianth leaves all alike; **Homochro'matism** (χρῶμα, colour), constant as to the colouring of the flower; **homochro'mous**, uniform in colour; **homoclin'ic**, **homocli'nous** (κλίνη, a bed), used by Delpino for that kind of homogamy when the anthers fertilise the stigma of the same complete flower; **homodrom'ic**, **homod'romal**, **homod'romous**, *-mus* (δρόμος, a course), having the spirals all of the same direction; **Homod'romy**, uniformity in direction of spirals; **Homody'namous** (δύναμις, strength), equal in strength or vigour.

**Homoeog'amy** (ὅμοιος, like, γάμος, marriage), the impregnation of an antipodal cell, instead of the oosphere as in *Balanophora*; (Van Tieghem), **Homoeo'sis** (ἠώς, dawn), Bateson's term for Metamorphy, a variation by assumption by one member of a meristic series, of the form or character proper to others.

**homog'amous**, *-mus* (ὁμός, one and the same, γάμος, marriage), bearing one kind of flower; **Homog'amy**, simultaneous ripeness of pollen and stigmas in a perfect flower; by Delpino divided into HOMOCEPHALIC ~, HOMOCLINIC ~, or MONOECIOUS ~; **homoge'neous**, **homoge'neal** (γένος, race, kind), of the same kind or nature, uniform, opposed to heterogeneous; **Hom'ogone** (γόνος, offspring), a plant bearing only one kind of flowers; adj. **homog'onous**, **Homog'ony**, the state of uniform respective length of anthers and stigmas in perfect flowers; homostylous; the opposite of Heterogony.

**homoiochlamyd'eous** (ὅμοιος, like, χλαμύς, a mantle), used by Engler and Prantl when the perianth is uniform; **homoiom'erous** (μέρος, a part), used of a Lichen thallus when the gonidia and hyphae are distributed in about equal proportions; Wallroth employed the word *homoeom'eres* from ὁμοιομερής.

**homol'ogous** (ὁμός, one and the same, λόγος, discourse), of one type, constructed on the same plan, though varying in form and function, as leaves and parts which answer morphologically to leaves; ~ Alternation of Generations, differentiation of generations which are fundamentally alike as regards descent, either in form or the character of their reproductive organs, cf. ANTITHETIC; **Hom'ologue**, the equivalent of certain organs; **Homol'ogy**, the identity of parts apparently different; **homom'alous** (Crozier), **homomal'lous**, *-lus* (μαλλός, a lock of wool), recurved, arising from all sides but turned to one direction; **homomer'icus** (μέρος, a part) = HOMOIOMEROUS; **homomor'phous**, *-phus*, **homomor'phic**, (μορφή, form), uniform in shape; **Homomor'phy**, uniformity, as when the disk and ray florets of Compositae are alike; either normally or by conversion of the disk florets from tubular into ligulate florets; **Hom'onym**, **Homon'ymon** (ὄνομα, a name), botanically, the same specific name in another genus of the same plant, as *Myrtus buxifolia*, Sw. is a Homonym as well as a Synonym of *Eugenia buxifolia*, Willd.; **homoom'erous** = HOMOIOMEROUS; **homopet'alous** (πέταλον, a flower leaf), (1) all petals being alike; (2) the receptacle of Compositae when the florets are alike, as the Ligulatae; **homophy'adic**, *homophya'deus* (φύη, growth), applied to those species of *Equisetum*, whose fertile and barren stems are similar in form; **Homoplas'my** (πλάσμα, moulded), similar in form but not of similar

origin, as *Cacti* and succulent Euphorbias; **Hom'oplast**, correspondence in external form, but distinct in nature; adj. **homoplas'tic, Hom'oplasy**, moulded alike but of different origin, analogous, not homologous, cf. HOMOPLASMY; **homos'porous** (*σπορά*, seed), similar-seeded, in opposition to HETEROSPOROUS; **hom'ostyled** (+STYLE) = HOMOGONOUS; **Homostyl'ia**, homogonous plants; **homothal'amus** (*θάλαμος*, a room, bride-chamber), resembling the thallus, used for Lichens only; **homot'ropal** (*τροπή*, a turning), applied to organs having the same direction as the body to which they belong; **homot'ropous**, *-pus* (1) curved or turned in one direction; (2) used of an anatropous ovule having the radicle next the hilum; **Hom'otype** (*τύπος*, form, type) (1) correspondence of parts; (2) in nuclear division this term is applied to those cases resembling ordinary karyokinesis, save in minor respects, immediately following the HETEROTYPE; in some cases it occurs in all the stages after the Heterotype, in which the reduced number of chromosomes are retained up to the formation of gametes (Farmer); **homotyp'ic**, homologous; **Homot'ypy**, the condition of correspondence of parts which are in series.

**Hon'ey**, the sweet secretion from glands or nectaries, which acts as an inducement to insect visitors; ~ **Cup**, used by Withering for nectary; ~ **Dew**, a sweet secretion voided by aphides from the juices of their host-plants; ~ **Guides**, lines or streaks of honey or colour leading to the nectary; ~ **Pore**, a supposed pore or gland which secretes honey; ~ **Spot** = ~ GUIDES; **Hon'eycomb-cells**, in Diatoms, hexagonal hollows, as in *Triceratium Favus*, Ehrenb.; **hon'eycombed**, alveolate.

**Hood**, = CUCULLUS; **hood'ed, Hood-shaped** (Crozier) = CUCULLATE.

**Hook**, a slender process, curved or bent back at the tip; ~ **Cli'mbers**, plants which support themselves by hooks or prickles, as the bramble; **hooked-back**, curved in a direction from the apex to the base as the side lobes in a dandelion leaf.

**Hoop**, the zone or girdle of Diatoms, the connection between the valves of the frustule.

**hora'rius, hor'ary** (*hora*, an hour), lasting an hour or two, as the expanded petals of *Cistus*.

**hordea'ceus** (Lat. pertaining to barley), shaped like an ear of barley; **Hor'dein**, a starch-like substance in barley.

**horizon'tal**, *horizonta'lis* (*ὁρίζων*, the circular boundary of vision), level; **Horizon'tal Sys'tem**, the cellular, as distinguished from the fibro-vascular system (Crozier).

**Hor'mogon** (Crozier) = **Hor'mogone**, *Hormogon'ium* (*ὅρμος*, necklace, *γόνος*, offspring), in filamentous Algae, those portions composed of pseudocysts marked off by heterocysts which become detached, and after a short period of spontaneous motion, come to rest and develop into new filaments; **Hor'mospores** (*σπορά*, seed), a term used by Minks for spores which are similar in origin to stylo- or teleutospores of Fungi, colourless, dividing into cells, microgonidia, etc., with diliquescence of the mother-cell, the microgonidia developing into heterocysts.

**Horn** (1) any appendage shaped like an animal's horn, as the spur in *Linaria*; (2) the antheridium of *Vaucheria*; **Horn'let**, a little horn (Crozier); **hor'ny**, corneous as to texture.

**Horn'bast** (Ger.), a tissue of obliterated groups of sieve-tubes, specially thickened and of horny texture (Wigand).

**hornot'inus, hor'nus** (Lat.), of this year, the present year's growth; **Ra'mi hor'ni**, branches not a twelvemonth old.

**horolog'ical** (*horologicus*, pertaining to a clock), said of flowers which open and close at stated hours; **Horolo'gium Flo'rae**, a time-table of the opening and closing of certain flowers:—see Linnaeus, Phil. Bot. 274; Kerner, Nat. Hist. Plants, ii. 215-218.

**horten'sis** (Lat.), pertaining to gardens, or only found there; **Hortula'nus** (Lat.) (1) a gardener; (2) belonging to a garden; **Hor'tus** (Lat.), a garden; ~ **sic'cus**, an herbarium; formerly it consisted of volumes with dried specimens glued down.

**Hose-in-hose**, a duplication of the corolla, as though a second one were inserted in the throat of the first.

**Host**, a plant which nourishes a parasite; **Host-plant**, the same.

**Hosto'rium** (*hostio*, I requite, ex Hensslow) = HAUSTORIUM.

**hu'mi** (Lat.), in or on the ground.

**hu'mifuse**, *humifu'sus* (*humus*, the ground, *fusus*, spread), spread on the surface of the ground; **humistra'tus** (*stratus*, stretched out), laid flat on the soil.

**hu'milis** (Lat.), lowly.

**Hu'mor** (Lat., moisture) = SAP.

**Hu'mulin**, the oleoresin of the hop, *Humulus Lupulus*, Linn.

**Hu'mus** (Lat., the ground), decomposing organic matter in the soil; ~ **Plants**, = SAPROPHYTES; ~ **Soils**, garden soils enriched with organic manure.

**Husk**, the outer covering of certain fruits or seeds; **hus'ky**, abounding with or consisting of husks.

**hyacin'thine**, *hyacin'thus*, *hyacinth'inus* (*ὑακίνθινος*, hyacinth-coloured) (1) dark purplish blue; (2) hyacinth-like in habit, a scape bearing spicate flowers.

**Hyales'cent**, "somewhat hyaline" (Crozier); **hy'aline**, *hyali'nus* (*ὑάλινος*, of glass), colourless or translucent; **hyalic'olor** (*color*, colour), wanting in colour.

**Hy'aloplasm**, **Hyaloplas'ma** (*ὕαλος*, crystal or glass, *πλάσμα*, moulded), the hyaline matrix or clear and non-granular portion of protoplasm; by some restricted to the ECTOPLASM.

**Hyber'nacle**, **Hyberna'culum** = HIBERNACULUM.

**hyberna'lis** = HIBERNALIS.

**Hy'brid**, *Hyb'rida* (Lat., a mongrel), a plant obtained by the pollen of one species on the stigma of another; **Hybrid'ity**, *Hybrid'itas*, crossed in parentage; **Hybridiza'tion**, (1) the art of obtaining hybrids by artificial crossing; (2) also used for the same operation occurring naturally.

**Hy'dathode** (*ὕδωρ*, water, *ὁδός*, a way), Haberlandt's term for water-pore or water-gland, an organ which extrudes water or other liquid; it resembles a stoma with functionless guard-cells; **Hydral'gae** (+ Algae) = HYDROPHYTES; **Hydracel'lulose** (+ Cellulose), see CELLULOSE; **Hy'drate**, a compound containing a definite proportion of water in chemical combination; **Hydra'tion**, the act of becoming chemically combined with water; **hydrocar'pic** (*καρπός*, fruit), used of aquatic plants which are fertilized above the water, but withdraw the fertilized flowers below the surface for development, as in *Vallisneria*; **Hydrocel'lulose**, see CELLULOSE; **Hydroi'd** (*εἶδος*, like) = TRACHEID (Crozier); **hy'droger** (*gero*, I bear), water-bearing, as *hydrog'era va'sa*, threads in a spiral vessel which were formerly supposed to convey fluid; **hy'drolated**, combined with the elements of water, by **Hydrola'tion**; **hy'drolysed** (*λύσις*, a loosing), chemically decomposed by taking up the elements of water; **Hydrol'ysis**, the act of being hydrolysed; **Hydroleu'cite** (+ LEUCITE), Van Tieghem's term for vacuoles in cell-sap, which he further subdivides into tanniferous ~, oxaliferous ~, coloured ~, albuminiferous ~, in accordance with their production

of tannin, oxalates, colouring matter, or aleurone; **Hy'drolist**, *cf.* CYTOHYDROLIST, PROTEOHYDROLIST; **Hy'drome**, the hydral or water-system of a vascular bundle, *cf.* HADROME; **Hydroph'ilae** (*φιλέω*, I love), water-pollinated plants; **hydroph'ilous**, some aquatic Phanerogams, and many Cryptogams which need water in order to be fertilized; ~ **Fun'gi**, refers to those Fungi which are allied to *Saprolegnia*; **Hy'drophytes**, **Hydrophy'ta** (*φυτὸν*, a plant), water-plants, partially or wholly immersed; **Hydrophytol'ogy** (*λόγος*, discourse), a treatise on water-plants; **Hy'droplast** (*πλαστὸς*, moulded), an apparent vacuole in which aleurone-grains arise; **Hydrople'on** (*πλέον*, full, = an aggregate of molecules, but smaller than a micella), water of crystallization; **Hydrot'rophy** (*τροφὴ*, food), unequal growth caused by unequal supply of moisture on one side of a part (Wiesner); **Hydrot'ropism** (*τροπὴ*, a turning), the phenomena induced by the influence of moisture on growing organs; **pos'itive** ~, turning towards the source of moisture; **neg'ative** ~, turning away from moisture.

**hy'emal**, *hyema'lis* (*hiems*, winter) = HIEMALIS, pertaining to winter.

**hygrochas'tic** (*ὑγρὸς*, moist, *χασμάω*, I yawn), applied by Ascherson to those plants in which the bursting of the fruit and dispersion of the spores or seeds is caused by absorption of water, as in *Anastatica hierochuntica*, Linn.; **Hygroch'asy**, the act in question; **Hy'drochrome** (*χρῶμα*, colour), used by Nadson for the pigments of *Russula* and *Amanita Muscaria*, Fr.; **hygromet'ric** (*μέτρον*, a measure), moving under the influence of more or less moisture, hygroscopic; **hygroph'anous** (*φαίνω*, I appear), looking watery when moist, and opaque when dry (Cooke); **Hy'grophytes** (*φυτὸν*, a plant), marsh-plants, or plants which need a large supply of moisture for their growth; **Hy'groplasm** (*πλάσμα*, moulded), Nägeli's term for the fluid portion of protoplasm, *cf.* STEREOPLASM; **hygroscop'ic** (*σκοπέω*, I see), susceptible of extending or shrinking on the application or removal of water or vapour; ~ **Cells**, certain cells in the leaves of grasses which cause them to alter in shape in dry weather, known also as bulliform cells; **Hygroscopic'ity**, *Hygroscopic'itas*, the hygroscopic property.

**Hy'lophyte** (*ὕλη*, a wood, *φυτὸν*, a plant), a plant which grows in woods, usually moist; adj. **hylophyt'ic**.

**Hy'lus**, **Hy'lum** = HILUM.

**Hy'men** (*ὑμήν*, a membrane), a skin or membrane; **hyme'nial** (1) pertaining to the HYMENIUM; (2) relating to the reproductive organs in certain Cryptogams; ~ **Al'ga**, the algal cell in a sporocarp in Lichens, also termed ~ **Gonid'ium**; ~ **Lay'er** = HYMENIUM; **Hyme'nium**, an aggregation of spore mother-cells in a continuous layer on a sporophore, the sporiferous part of the fructification in Fungi; **hymeno'des** (*εἶδος*, like), having a membranous texture; **Hymenoli'chen** (+Lichen), a term devised by Mattirolo for a Lichen which is symbiotically associated with a hymenomycetous Fungus; **hymenomyce'tous** (*μύκης*, a mushroom), having the hymenium exposed at maturity, the spores borne on basidia; **Hy'menophore**, *Hymenophor'ium* (*φορέω*, I carry), in Fungi that part which bears the hymenium, the sporophore; **Hy'menopode**, *Hymenopod'ium* (*πούς*, *ποδός*, a foot), Fayod's name for the hypothecium; **Hyme'nulum**, a disk or shield containing asci, but without an excipulum.

**Hyoscy'amin**, an alkaloid contained in Henbane, *Hyoscyamus niger*, Linn.

**Hypan'thium**, **Hypantho'dium** (*ὑπὸ*, under, *ἄνθος*, a flower), an enlarge-

ment or development of the torus under the calyx, a syconium.

**Hyperanisog'amy** (*ὑπὲρ*, above, *ἄνισος*, unequal, *γάμος*, marriage), the female gamete, at first active, and much larger than the male gamete (Hartog); *cf.* OOGAMY.

**hyperbor'ean**, *hyperbor'eus* (*βορέας*, the north wind), northern.

**hyperchromat'ic** (*ὑπὲρ*, above, *χρωματικός*, suited for colour), readily susceptible of taking colour, or intensified colouration; **Hyperd'romy** (*δρόμος*, a course), when anadromous and catadromous venation occurs on one side of a Fern-frond (Prantl); **hyperstomat'ic** (+STOMA), having the stomata on the upper surface; **hypertroph'ic** (*τροφή*, food), morbidly enlarged; **Hyper'trophy**, an abnormal enlargement of an organ, presumably by excess of nourishment; **Hyper'trophytes** (*φυτόν*, a plant), a term employed by Wakker for those parasitic Fungi which cause hypertrophy in the tissues.

**Hy'pha** (*ὑφή*, a web), pl. **Hy'phae**, element of the thallus in Fungi, a cylindric thread-like branched body developing by apical growth and usually septate; **Sieve** ~, or **Trum'pet** ~, a special form found in Algae, bulging at each septum (F. W. Oliver); **hy'phal**, relating to hyphae; ~ **Tis'sue**, interwoven hyphae, constituting the tissues of the larger Fungi.

**Hyphas'ma** (*ὕφασμα*, a web), the thallus of Agarics.

**Hyphe'ma** (*ὑφή*, a web), used by Minks for the hyphal layer in Lichens; **Hyphid'ium**, a term proposed by Minks for SPERMATIUM; **hypho-d'romous**, *-mus* (*δρόμος*, a course), used when the veins are sunk in the substance of a leaf, and thus not readily visible; **Hy'phopode**, *Hyphopod'ium* (*πούς*, *ποδός*, a foot), appendages on the mycelium of *Meliola* which bear the perithecia (Gaillard); **hyphomyce'tous** (*μύκης*, a mushroom), applied to Fungi bearing their spores on simple or branched hyphae; **Hyphomyce'tes** are *Fungi imperfecti*; **Hyphostro'ma** ‡(*στρῶμα*, spread out), the mycelium of Fungi.

**Hyp'nocyst** (*ὕπνος*, sleep, *κύστις*, a bag or pouch), in Pediastreae, etc., a dormant stage assumed when the conditions for growth are unfavourable; **Hyp'note**, an organism in a dormant state; **hypnot'ic**, dormant, not dead, as in seeds; **Hyp'noplasm** (*πλάσμα*, moulded), the protoplasm of a dormant individual, as of a seed, *cf.* NECROPLASM; **Hypno'sis**, the state of dormant vitality shown by seeds whilst still retaining their power of germination (Escombe); **Hyp'nosperm** (*σπέρμα*, a seed), the winter state of the zygosperm of *Hydrodictyon*; **Hypnosporan'gium** (*σπορά*, a seed, *ἀγγεῖον*, a vessel), a sporangium containing resting spores; **Hyp'nospore**, a resting spore; **Hypnothal'lus** (*θαλλός*, a young branch), Chodat's term for growth by cell-division from hypnocysts, as in *Monostroma*.

**hypoba'sal** (*ὑπό*, under, *βάσις*, a pedestal), behind the basal wall, employed as regards the posterior half of a proembryo; *cf.* EPIBASAL; **Hypoblas'tus** (*βλάστος*, a shoot), the fleshy cotyledon of grasses; **Hypocarp'ium** (*καρπός*, fruit), an enlarged growth of the peduncle beneath the fruit, as in *Anacardium*; **hypocarpoge'an**, *-geus* (*καρπός*, fruit, *γῆ*, the earth), =HYPOGAEAN; **hypocarpog'enous** (*γεννάω*, I bring forth), the flowers and fruit produced underground (Pampaloni), *cf.* AMPHICARPOGENOUS; **Hy'pochil**, *Hypochil'ium*, *Hypochi'lus* (*χεῖλος*, a lip), the basal portion of the labellum of Orchids; **Hypochlor'in** (*χλῶρος*, light green), Pringsheim's name for a constituent of chlorophyll corpuscles, supposed to be the first visible product of constructive metabolism; **Hypochro'myl** (*χρῶμα*, colour)=HYPOCHLORIN; **Hypocot'yl** (*κοτύλη*, a hollow), the axis of an embryo below the cotyledons, but

not passing beyond them; **hypocotyle'donary**, below the cotyledons and above the root; **hypocrate'riform**, *hypocrateriform'is* (κρατῆρ, a bowl, *forma*, shape), salver-shaped, as the corolla of the Primrose, *Primula vulgaris*, Huds.; **hypocraterimor'phous**, *-phus* (μορφή, shape), salver-shaped; the same meaning as in the last, but derived wholly from the Greek; **Hyp'oderm** = **Hypoder'ma**, *Hypoder'mis* (δέρμα, skin, hide), the inner layer of the capsules of Mosses; **hypoder'mal**, beneath the epidermis; **hypogae'ous**, *-eus*, **hypoge'al**, **hypoge'an** (γῆ, the earth), growing or remaining below ground, as certain cotyledons, as in the Pea; **hypog'enous** (γένος, offspring), produced beneath; **hypog'ynous**, *-nus* (γυνή, a woman), free from but inserted beneath the pistil or gynaecium; **hypolith'ic** (λίθος, a stone), growing beneath stones.

**hypom'enous**, *-us* (ὑπομένω, I stay behind), free, not adherent, arising from below an organ without adhesion to it.

**Hypomiclia** [*sic*, possibly a misprint for "Hypomycelia" from ὑπό, under, + MYCELIUM], "the mycelium of certain Fungals" (Lindley); **hyponas'tic** (ναστός, close pressed), (1) used of a dorsiventral organ in which the ventral surface grows more actively than the dorsal, as shown in flower expansion; (2) by Van Tieghem employed for anatropous or campylotropous ovules when the curvature is in an upward direction; **Hyponas'ty**, the state in question; **Hypoog'amy** (ὠόν, an egg, γάμος, marriage), a shortened form of HYPERANISOGAMY; **hypophloe'odal**, **hypophloe'odic** (φλοιός, bark), applied to Lichens when growing under the epidermis of the bark; **hypophyl'lous**, *-lus* (φύλλον, a leaf), situated under a leaf, or growing in that position; **Hy'pophyll**, *Hypophyl'lum* (1) an abortive leaf or scale under another leaf or leaf-like organ, as in *Ruscus*; (2) also used for the lower portion of the leaf from which stipules develop, adherent to the axis and ultimately forming the leaf-scar; **Hypoph'ysis** (φύω, I grow), the cell from which the primary root and root-cap of the embryo in Angiosperms is derived; adj. **hypophys'ial**; **Hypopleu'ra** (πλευρά, a rib), the inner half-girdle of the frustule of a Diatom (O. Mueller); **Hypopod'ium** (πούς, ποδός, a foot), the stalk of a carpel; **Hypop'teries** ‡ (πτερόν, a feather or wing), a wing growing from below, as the seed of a Fir-tree; **hypoptera'tus**, ‡ having wings produced from below; **Hyposath'ria** (σαθρός, rotten), the state of secondary ripening styled bletting, as in medlars; **Hyposporan'gium** (σπορά, a seed, ἀγγεῖον, a vessel), the indusium of Ferns, when proceeding from below the sporangia; **Hypost'asis** ‡ (στάσις, a standing), the suspensor of an embryo; **hypostomat'ic** (+ STOMA), with the stomata on the under surface; **Hypostro'ma** (στρῶμα, spread-out) = MYCELIUM; **hypotet'rarch** (+ tetrarch), in a triarch stele, the division of the median protoxylem; **Hypothal'lus** (θαλλός, a young branch), the marginal outgrowth of hyphae in crustaceous Lichens; **hypothal'line**, relating to the hypothallus or resembling it; **Hypothe'ca** (θήκη, a case), the inner half-frustule of a Diatom (O. Mueller); **hypothe'cal**, belonging to the hypotheca of a Diatom; **Hypothe'cium**, a layer of hyphal-tissue immediately beneath the hymenium in certain Cryptogams; **hypotri'arch** (+ triarch), when in a triarch stele, the median protoxylem group is lowermost, (Prantl); **Hypot'rophy** (τροφή, food), Wiesner's term when the growth of cortex or wood is greater on the lower side of the branch; also when buds or stipules form on the lower side; **Hypoval'va**

(*valva*, a door), the valve of the inner "shell" or Hypotheca of a Diatom (O. Mueller); **Hypoxan'thin** (*ξανθὸς*, yellow), a substance akin to xanthin, which has been found in germinating seeds.

**Hyp'sophyll** (*ὕψι*, high, aloft, *φύλλον*, a leaf), a bract of the inflorescence, a reduced or modified leaf towards the upper end of a shoot, *cf.* CATAPHYLL; Germ. Hochblatt; **hypsophyl'lary**, relating to bracts; **~ Leaf**, a bract.

**hys'ginus** (*ὕσγινον*), a red colour, or dark reddish pink.

**hysteran'thous**, *-thus*, *-this* (*ὕστερος*, following, *ἄνθος*, a flower), used of leaves which are produced after the flowers, as in the Almond; **hysterogen'ic** (*γένος*, race, offspring), used of intercellular spaces which are formed in the older tissues; **Hys'terophyme** (*φῦμα*, a tumour or excrescence), elementary organs which have been mistaken for independent animal or vegetable organisms (H. Karsten); **hysterophy'tal** (*φυτὸν*, a plant), fungoid; **Hys'terophyte**, a plant which lives upon dead matter; a saprophyte.

**ianth'inus** (*ἰάνθινος*, violet colour), bluish purple, violet.

**iced**, having a glittering papillose surface, as *Mesembryanthemum crystallinum*, Linn.

**I'cones**, pl. (*icon*, *εἰκὼν*, a figure), pictorial representations of plants, botanic figures.

**icosahed'ral** (*εἴκοσι*, twenty, *ἑδρα*, a seat or base), having twenty sides, as the pollen-grains of *Tragopogon*; **icosan'der**, **icosan'drous**, *-rus* (*ἀνήρ*, *ἀνδρὸς*, a man), with twenty or more stamens; **Icosan'dria**, a Linnean class of plants with twenty stamens or more inserted on the calyx.

**icter'icus**, **icteri'nus** (*ἰκτερικὸς*, jaundiced), the colour of a person suffering from jaundice, impure yellow.

**Id** (*ἰδης*, suffix implying paternity), an hereditary unit recognised in granules and chromosomes; **I'dant**, a serial complex of ids, Weismann's term for CHROMOSOME.

**Identifica'tion**, used for Determination (Crozier).

**-i'des**, **-ideus** (*εἶδος*, like), a suffix in Greek compounds denoting similar, *cf.* -O-IDES.

**Id'ioblast** (*ἴδιος*, personal, peculiar, *βλαστὸς*, a bud or shoot), (1) a special cell in a tissue which markedly differs from the rest in form, size, or contents, as the "stellate-cells" in *Nymphaea*; (2) used by Hertwig for PANGEN, a unit of hereditary substance; **idiog'ynus** ‡ (*γυνὴ* a woman), not having a pistil; **Id'ioplasm** (*πλάσμα*, moulded), Naegeli's term for the active organic part of the protoplasm; **idiothal'amous**, *idiothal'amus*, (*θάλαμος*, a bedroom), having different colouration from the thallus, a term in lichenology; **Idiomorph'osis** (*μόρφωσις*, a shaping), a special kind of metamorphosis, as the petals of *Camellia*, from bundles of stamens, or petaloid sepals of *Polygala* (Delpino).

**ig'neus** (Lat., fiery), flame-coloured, used for combinations of red and yellow, or brilliant in tone.

**ignia'rius** (Lat., pertaining to fire), of the consistence of German tinder, derived from puff-balls.

**illegit'imate**, fertilization in dimorphic or trimorphic flowers so termed, when occurring between parts of diverse length, as long with short, etc.

**imberb'is** (Lat.), beardless, devoid of hairs.

**Imbibit'ion** (*imbibo*, I drink in), the act of imbibing; **~ The'ory**, Sachs's suggestion that water ascends in plants by a chemical process in the cell-walls, and not by actual passage upwards by vessels.

**im'bricate**, **imbrica'ted**, *imbrica'tus* (Lat., covered with gutter tiles), (1) overlapping as the tiles on a roof; (2) in aestivation, used of a

calyx or corolla where one piece must be wholly internal and one wholly external, or overlapping at the edge only; **imbric'ative** is a synonym.

**immarg'inate**, *immargina'tus* (*im* = not, *margo*, *marginis*, a border), not margined or bordered.

**immedia'tus**, (Mid.Lat., not mediate), proceeding directly from a part, as pedicels of a raceme.

**immer'sed**, *immer'sus* (Lat., plunged), below the surface; (1) entirely under water; (2) embedded in the substance of the leaf or thallus.

**immo'bilis** (Lat.), immovable, as many anthers; opposed to versatile.

**impa'ri-pin'nate**, ~ *-pinna'tus* (*impar*, unequal, + PINNATE), pinnate with an odd terminal leaflet.

**imper'fect**, *imperfec'tus* (Lat., incomplete), where certain parts usually present are not developed; as a flower may be imperfect, that is, unisexual.

**imperf'orate** (*in*, into, *per*, through, *fora'tus*, bored), without an opening, closed (Crozier).

**implex'us**, (Lat., an entwining), entangled, interlaced.

**implica'tus** (Lat.), entangled, woven in.

**Impregna'tion** (*im* = in, *praegnatus*, pregnancy), fertilization, the union of male and female elements.

**impres'sus** (Lat., pressed into), marked with slight depressions.

**impu'bes**, not mature, as *impubera Aetas*, the period before impregnation.

**inadhe'ring** (*inadhaerens*, not clinging), free from adjacent parts.

**inaequa'lis** (Lat.), unequal in size; **inaequimag'nus**,‡ (*magnus*, large), not the same in size; **inaequilat'eral**, *inaequilatera'lis*, *inaequilat'eris* (*latus*, *lateris*, a side), unequal sided, as the leaf of *Begonia*; **inaequiner'vius**, (*nervus*, a nerve), when the veins are of dissimilar size.

**inane'**, *ina'nis* (Lat.), empty, void; as an anther containing no pollen.

**inan'therate** (Crozier) = **inanthera'tus**, (*in* = not, + ANTHER), having no anther; said of abortive or sterile filaments.

**inappendic'ulate**, *inappendicula'tus* (*in* = not, *appendicula*, a small appendage), without appendages; **inaper'tus**, (*apertus*, opened), not opened, contrary to its habit.

**Inarch'ing**, grafting by approach, the scion remaining partly attached to its parent, until union has taken place.

**inartic'ulate**, *inarticula'tus* (Lat., indistinct), not jointed, continuous.

**incanes'cent**, *incanes'cens* (Lat., turning hoary), becoming grey, canescent.

**inca'nous** (Crozier) = **inca'nus** (Lat.), quite grey, hoary.

**incar'nate**, *incarna'tus* (Lat., clothed in flesh), flesh-coloured, "carneous."

**In'cept**, **Incep'tion** (*inceptum*, a beginning), suggested rendering of the German "Anlage."

**Inch**, an English measure, equalling 2.54 cm.; in Latin, *uncia*, *uncialis*.

**inci'sed**, *inci'sus* (Lat., cut into), cut sharply into the margin; **inci'so-denta'tus**, slashed toothed; ~ **-serra'tus**, deep-slashed serrations; **Incis'ion**, *Incis'io*, an indentation on the margin of a foliar organ.

**incli'ning**, **incli'ned** (*inclinatus*, bent down), falling away from the horizontal direction.

**inclu'ded**, *inclu'sus* (Lat., shut in), not protruding beyond the surrounding organ; **includen'tia fo'lia**, applied to alternate leaves which in the sleep-position approach buds in their axils, seeming to protect them as in *Sida* (De Candolle).

**Incog'nit** (*incognitus*, not examined), used by H. C. Watson for those British plants whose nativity or distribution are matters of doubt.

**incomple'te**, *incomple'tus* (Lat., not finished), wanting some essential part; **Incomple'tae**, usually synonymous with Monochlamydeae, but variously circumscribed by different authors.

**inconspic'uous**, *-cuus* (Lat., not re-

markable), not readily seen from small size or lack of colour.

**incras'sate**, *incrassa'tus* (Lat., thickened), made stout, as the leaves of house-leek.

**incre'asing** = ACCRESCENT ; **incres'cent** (*incresco*, I grow), growing (Crozier).

**Incrus'ting**, *incrusta'tus* (Lat., coated), (1) used of seeds so firm in their pericarp, as to seem one with it ; (2) encrusted with earthy matter.

**Incuba'tion** (*incubatio*, a brooding), the time from the moment of infection or sowing of spores, until growth is manifest.

**in'cubous**, *-bus* (*incubo*, I lie upon), the oblique insertion of distichous leaves, so that the lower overlap the upper on the same side of the stem on the dorsal surface, as in *Bazzania* ; *cf.* SUCCUBOUS.

**incum'bent**, *incum'bens* (Lat., leaning on), resting or leaning upon, procumbent ; ~ **An'ther**, one which lies against the inner face of its filament ; ~ **Cotyle'dons**, when the back of one lies against the radicle, shown as ‖ o.

**incur'ved**, *incur'vus*, **incur'vate**, *incurva'tus* (*incurvus*, bent), bending from without inwards.

**indef'inite**, *indefini'tus* (Lat., not precise), (1) uncertain or not positive in character ; (2) too many for easy enumeration, as an abundance of stamens, denoted by the sign ∞ ; (3) in an inflorescence, when racemose, the main axis being capable of constant extension ; ~ **Growth**, continuous growth and not the mere extension of a limited organism or bud ; ~ **Inflores'cence**, indeterminate or centrifugal, acropetal of some authors.

**indecid'uous** (*in* = not, *deciduus*, cut or lopped off), evergreen or persistent foliage (Crozier) ; **indehis'cent**, *-cens* (*dehiscens*, gaping), not opening by valves or along regular lines.

**Indepen'dence**, the separation of organs usually entire.

**indeterm'inate**, *indetermina'tus*, not terminated absolutely, as an inflorescence in which no flower ends the axis of the flower-cluster.

**In'dican**, a nitrogenous glucoside, by its decomposition forming INDIGO.

**indif'ferent** (*indifferens*, without difference), not specialized or differentiated.

**In'digene** (*indiges*, native), a native plant ; **indig'enous**, *-nus*, original to the country, not introduced.

**In'digo**, a deep blackish blue obtained from *Indigofera tinctoria*, Linn. ; **In'digogene**, white indigo, or colourless indigotine ; **indigot'icus**, indigo blue, atro-cyaneus.

**In'digotine**, pure blue indigo, forming about four-tenths of the commercial indigo.

**indirec'te veno'sus**, Link's term for lateral veins combined within the margins, and emitting other little veins.

**Individ'ual**, *Individ'uum* (*individ'uus*, inseparable), a unit of the series which constitute species ; **Individ'ualism**, (1) capable of separate existence ; (2) symbiosis in which the total aggregate result is wholly different from any of the symbionts ; **Individua'tion**, a synonym of the last (2).

**indivi'sus** (Lat.), undivided, entire.

**indu'ced**, applied to those movements which are the result of some irritation or stimulus, as pressure, light, heat, etc. ; **Induc'tion**, the production of sensitive movements ; **hetero-g'enous** ~, due to two or more causes ; **isog'enous** ~, due to one cause.

**Indumen'tum** (Lat., a garment), any covering, as hairiness.

**indu'plicate**, *induplica'tus* ; **indu'plicative**, with the margins bent inwards, and the external face of these edges applied to each other, without twisting.

**induras'cens** (*induresco*, I harden), hardening by degrees ; **indura'ted**, hardened.

**indu'saeform**, **indu'siform** (INDUSIUM, *forma*, shape) ; **indu'sioid** (εἶδος, like), John Smith's expression

for any indusium-like covering in Ferns.

**Indu'sium** (Lat., a woman's undergarment), (1) an epidermal outgrowth covering the sori in Ferns ; (2) a ring of collecting hairs below the stigma; (3) the annulus of some Fungi (Lindley) ; **indu'siate,** *indusia'tus,* possessing an indusium.

**Indu'viae** (Lat., clothes), (1) persistent portions of the perianth, or leaves which wither, but do not fall off ; (2) scale-leaves ; **indu'viate,** *induvia'lis, induvia'tus,* clothed with withered remnants.

**inembryona'tus** (*in,* not, *embryo,* an embryo), having no embryo.

**inaequilat'eral,** *inaequilatera'lis* (*in,* not, *aequalis,* equal, *latus, lateris,* a side), unequal-sided; **inae'quivalve, inaequival'vular** (*valva,* a door-leaf), used of the glumes of plants which show inaequality in their constituent valves.

**Inench'yma** (*in,* in, ἔγχυμα, an infusion), fibro-cellular tissue, the cells having the appearance of spiral vessels, as in *Sphagnum.*

**inerm',** **iner'mous,** *iner'mis* (Lat., unarmed), without spines or prickles.

**ineye'**, to inoculate, or bud.

**infarc'tate** (*infarctus,* stuffed into), turgid or solid.

**infec'tious,** communicable by infection, as diseases in plants, etc. ; caused by some organism from outside.

**in'fer-agar'ian Zone,** H. C. Watson's term for the lowest portion of the cultivated lands in Great Britain ; ~ **arc'tic Zone,** a similar term for the lowest division of his arctic region in Britain.

**infe'rior** (Lat., lower), (1) below some other organ, as an ~ **Ca'lyx** is below the ovary, or an ~ **O'vary** seems to grow below the adnate calyx ; (2) has been used for anterior, or turned away from the axis.

**infla'ted,** *infla'tus* (Lat., puffed up), bladdery, swollen.

**inflec'ted** (*inflec'to,* I bend), bent or flexed.

**In'ferals,** a division of gamopetalous Dicotyledons, proposed for Rubiaceae, Compositae, Companulaceae, etc.

**inflex'ed,** *inflex'us* (Lat., bent), turned abruptly or bent inward, incurved.

**Inflores'ence,** *Inflorescen'tia* (*infloresco,* I begin to blossom), (1) the disposition of the flowers on the floral axis ; (2) less correctly used for the Flower Cluster ; **def'inite** ~, when each axis in turn is terminated with a flower, as in a Cyme; **indef'inite** ~, when the floral axis is capable of continuous extension, as in a raceme.

**info'liate** (*in,* in, *folium,* a leaf), to cover with leaves.

**infos'sus,** (Lat., buried), sunk in anything, as the veins in some leaves, but leaving a visible channel.

**in'fra-axil'lary,** *infra-axilla'ris* (*infra,* below + AXILLARIS), below the axil ; **infrano'dal** (*nodus,* a knot) **Canals',** gaps in the medullary rays of *Calamites,* below the node, leaving prints on the casts (Williamson).

**infrac'ted,** *infrac'tus* (Lat., broken, bent), incurved.

**Infructes'cence** (*fructus,* fruit, by analogy to inflorescence), (1) the inflorescence in a fruiting stage ; (2) collective fruits.

**infruc'tuose** (*infructuo'sus,* unfruitful), barren, not bearing fruit.

**infundib'ular,** *infundibula'ris* (*infundibu'lum,* a funnel), funnel-shaped ; **infundibu'liform,** *infundibulifor'mis* (*forma,* shape), shaped like a funnel.

**infus'cate** (*infuscus,* dusky), of a brownish tint.

**Inhib'ition** (*inhibitio,* a restraining), modification or restraint in function.

**init'ial** (*initialis,* original) ~ **Cells,** cells from which primordial layers or nascent tissues arise ; ~ **Lay'er,** the middle cambium layer.

**Injec'tion** (*injectus,* cast into), the filling of intercellular spaces with water (Crozier).

**in'nate**, *inna'tus* (Lat., natural), (1) borne on the apex of the support, in an anther the antithesis of adnate; (2) imbedded (Leighton).

**in'ner**, internal, nearer the centre than something else; ~ **Lam'ina**, the layer of a lignified cell-wall which is next the inside of the cell; ~ **Perid'ium**, ~ **Tu'nic**, a more or less coloured membrane which surrounds the hymenium in *Verrucaria* beneath the perithecium.

**in'novans** (Lat.), renewing; **innovan'tes Gem'mae**, the fixed or persistent buds of Mosses.

**Innova'tion** *Innova'tio*, (Lat., an alteration), a new formed shoot in Mosses, which becomes independent from the parent stem by dying off behind; ~ **Shoot**, a vigorous shoot which carries on the further growth of the plant.

**Innucella'tae** (*in* = not, + NUCELLUS), Van Tieghem's name for phanerogamic plants whose ovules want nucellus and integuments, such as the Santalaceae.

**Inocula'tion** (*inoculatio*, ingrafting), grafting, more properly budding, a single bud only being inserted.

**inorgan'ic** (*in*, not, + ORGANIC), devoid of organs; ~ **Ash**, the final residuum after complete combustion, the mineral portion of a vegetable tissue; ~ **Com'pounds**, those which form part of animal or plant structure derived from mineral substances; ~ **Fer'ments**, enzymes, as opposed to organic ferments, as bacteria.

**inos'culating** (*in*, into, *osculatus*, kissed), anastomosing; **Inoscula'tion**, budding or grafting.

**I'nosite** (*ἴς*, *ἰνὸς*, strength, sinew), a saccharine aromatic principle which occurs in many seeds and other parts of plants, especially in climbers.

**Inovula'tae**, (*in*, not, + OVULUM), phanerogamic plants which have no ovules discernible at the time of fertilization, as the Loranthaceae (Van Tieghem).

**insculpt'** (*insculptus*, engraved), imbedded in rocks, as some Lichens.

**insectiv'orous** (*insectum*, an insect, *voro*, I devour), used of those plants which capture insects and absorb nutriment from them.

**Insemina'tae** (*in* = not, *semen*, seed), Van Tieghem's name for those plants which do not contain seed separable or distinct at maturity; in order to germinate, the fruit must be sown entire.

**Insepara'tion** (*inseparatus*, not separated), Masters's term for coalescence; adj. **insep'arate**.

**inser'ted**, *inser'tus* (Lat., put into), joined to or placed on; **Inser'tion**, *Inser'tio*, (1) mode or place where one body is attached to its support; (2) Grew's term for a medullary ray.

**Insit'ion** (*insitio*, a grafting), the insertion of a scion into a stock, grafting.

**Insola'tion** (*insolo*, I expose to the sun), exposure to the direct rays of the sun.

**inspis'sated** (*in*, into, *spissatus*, thickened), thickened, as juice by evaporation.

**instip'ulate** (*in* = not, + STIPULATE), exstipulate (Crozier).

**in'teger** (Lat., whole), entire, not lobed or divided; **in'tegra Ra'dix**, an unbranched root; ~ **Vagi'na**, the sheathing petiole which forms a continuous tube, as in sedges; **integer'rimus**, an emphatic assertion of the entirety of an organ; **integrifo'lious** (*folium*, a leaf), with undivided, or simple leaves.

**Integmina'tae** (*in* = not, *tegmen*, a covering), Van Tieghem's name for plants whose nucellus is devoid of integument.

**Integ'ument** (*integumen'tum*, a covering), the covering of an organ or body; *integumen'ta flora'lia*, the floral envelopes.

**in'ter-axill'ary** (*inter*, between + AXILLARIS), between the axils.

**inter'calary** (*intercalaris*, that to be inserted), used of growth, which is not apical but between the apex

and the base; ~ **veg'etative Zone**, a portion lying between mature tissue which takes on growth as though a growing point; **inter'calated**, interposed, placed between.

**intercarp'ellary** (*inter*, between, + CARPEL), between the carpels; **intercell'ular**, (+ CELLULAR) between the cells or tissues; ~ **Pas'sage**, a continuous opening between the cells; ~ **Space**, a cavity bounded by the cells of a tissue; ~ **Sub'stance**, material extravasated from within to outside the cell; ~ **Sys'tem**, the intercellular spaces and adjacent tissues (Crozier); **intercos'tal** (*costa*, a rib), between the ribs or nerves of a leaf; **Intercros'sing**, cross-fertilization; **interfascic'ular** (*fasciculus*, a bundle), between the vascular bundles; ~ **Cam'bium**, that formed between the bundles in the primary medullary rays; ~ **conjunc'tive Tis'sue** = preceding; ~ **Phlo'ëm**, ~ **Xy'lem**, respectively formed from the ~ CAMBIUM; **interfi'lar** (*filum*, a thread), between filaments, as the resting spore in *Mesocarpus* (Crozier); **interfolia'ceous** (*folium*, a leaf + aceous) between the leaves of a pair, as the stipules of many Rubiaceae; **interfo'liar**, situated between two opposite leaves; **Int'erfoyles**, Grew's name for (1) bracts; (2) scales; (3) stipules.

**intergeri'num** (Lat., placed between), **Lig'num**, ‡ the dissepiment of a fruit.

**Interlob'ule** (*inter*, between + lobule), name given by Spruce to a small plane process of a subulate or triangular form, between the lobule and the stem in certain Hepaticae.

**interme'diate**, *interme'dius* (Lat., that which is between), half-way, or between; ~ **Tis'sue**, the ground tissue in exogens, except that of the epidermis and vascular bundles; ~ **Type**, employed by H. C. Watson for those plants whose distribution in Great Britain is of a local or doubtful range; ~ **Zone** (1) the active zone between the pith and epidermis, containing the vascular bundles in Monocotyledons; (2) by Watson used as indicating a certain elevation, between the agrarian and arctic zones; **intermicel'lar** (+ MICELLA), between the micellae; **intermolec'ular** (+ MOLECULE), between the molecules.

**inter'nal** (*interne*, inwardly) ~ **Peri-cy'cle**, Flot's expression for the procambium retained on the inner side of the vascular bundle.

**In'ternode**, *Interno'dium* (Lat.), the space or portion of stem between two nodes; adj. **interno'dal.**

**interpet'iolar**, *interpetiola'ris* (*inter*, between, *petiolus*, a little stalk), (1) between the petioles; (2) enclosed by the expanded base of a petiole; (3) also applied to connate stipules which have coalesced from two opposite leaves.

**interpo'sed** (*interpos'itus*, placed between) **Mem'bers**, those parts which have arisen in a whorl subsequent to its earlier members; **Interposit'ion**, *Interposit'io*, formation of new parts between those already existing in a whorl; **interpositi'vus** (Lat.), interposed.

**interrup'ted** (*interruptus*, broken or separated), when any symmetrical arrangement is destroyed by local causes; a solution of continuity; ~ **Growth**, an alternation of abundant and scanty development, appearing as constrictions in an organ, as a fruit or tap-root; **interrup'tedly pin'nate** (1) a pinnate leaf without a terminal leaflet; (2) having small leaflets interposed with those of larger size.

**interstam'inal** (*inter*, between, + STAMINAL), placed between two stamens; **interstam'inate** is a synonym.

**Inter'stice** (*interstit'ium*, a space between), small air-spaces; larger are termed lacunae, still larger, air-passages; **interstit'ial Growth**, the theory which requires the interposition of new particles between the older portions, instead of superficial additions.

**Inter'venium** (*inter*, between, *vena*, a vein), a portion of parenchyma between the veins of a leaf; **Interwea'ving** (+ weaving), the union of hyphae by growing amongst each other, without cohesion; Germ. Verflechtung; **interxy'lary** (+ XYLEM), amongst the xylem elements.

**Intex'ine, Intex'tine** (*intus*, within, + EXTINE), the inner membrane when two exist in the extine, or outer covering of a pollen-grain; **In'tine**, the innermost coat of a pollen-grain.

**Intor'sio** (Lat., curling or crisping); **Intor'tion** = TORSION; **intor'tus** (Lat., twisted), practically a synonym of contorted, twisted upon itself.

**intodisca'lis** ‡ (*intus*, within, *discus*, a disc), inserted within the disk of a flower.

**intracarp'ellary** (*intra*, within, + CARPEL), within the carpels; **intracell'ular** (+ CELLULAR), within a cell; **intrafascic'ular** (*fascic'ulus*, a bundle), within a bundle; **intrafi'lar** (*filum*, a thread), within a filament; **intrafolia'ceous**, *-ceus* (*folium*, a leaf, + aceous), within or before a leaf, as within the axil; **intralam'ellar** (*lamella*, a small plate), within plate-like structures, as the trama of Agarics; **intramarg'inal** (*margo*, a margin), placed within the margin near the edge; **intramat'rical** (*matrix*, a mould), inside a matrix or nidus; **Intrameabil'ity** (*meabilis*, penetrable), the capacity of protoplasm to permit substances to pass into its vacuoles (Janse); **intramolec'ular** (+ MOLECULE), within the molecules; **intramu'ral** (*muralis*, pertaining to a wall), between the walls of cells, as ~ **Glands**, used by De Bary for multicellar organs of secretion, whose product appears in the limiting walls; **intranu'clear** (*nucleus*, a kernel), within the nucleus; **intrapet'iolar** (*petiolus*, a small stalk), within the petiole, or between it and the stem, as ~ **Buds**, those which are completely enclosed by the petiole, as in *Platanus*.

**intrar'ious**, *intrar'ius* (L. Lat.) turned inward toward the axis.

**intrasem'inal** (*intra*, within, *semen*, a seed), within the seed; ~ **Devel'opment**, the whole development undergone by the embryo during the conversion of the ovule into the ripe seed; **intraste'lar** (+ STELE), within the stele, as ~ **Tis'sue** = CONJUNCTIVE TISSUE; **intravagi'nal** (*vagina*, a sheath), within the sheath, applied to branches which spring from buds which do not break through the sheath of the subtending leaf (Scribner); **intravalvula'ris** (+ VALVULARIS), within valves, as the dissepiment in many Cruciferae; **intraxy'lary** (+ XYLEM) within the xylem.

**in'tricate**, *intrica'tus* (Lat.), entangled.

**introcur'ved**, *introcur'vus* (Lat.), incurved.

**introdu'ced** (*introduct'us*, brought within), used of plants which have been brought from another country.

**introflex'ed** (*intro*, inside, *flexus*, bent), inflexed.

**in'trorse**, *intror'sus* (Mod. Lat.) turned inward, towards the axis.

**introve'nius** (*intro*, inside, *vena*, a vein), hidden veined; from the abundance of parenchyma, the veins not readily seen; *cf.* AVENIUS.

**intru'ded, in'truse**, *intru'sus* (Lat., thrust in), pushed or projecting forward.

**Intussuscep'tion** (*intus*, within, *susceptus*, taken up), the theory of growth, which assumes the intercalation of new particles (micellae), between the already existing particles of the cell-wall.

**In'ulase** (from the genus *Inula*), an enzyme in Compositae which converts Inulin into Levulose; **Inu'lenin**, a subordinate constituent of Inulin (Tanret); **In'ulin**, a body like starch, first found in Compositae, in the form of sphaerocrystals.

**inun'cans** ‡ (Lat., hooking), the surface covered with glochidia or hooked hairs.

**inunda'tal** (*inundatus*, overflowed), Watson's expression for those plants which grow in places liable to be inundated in wet weather, but dry in summer; **inunda'tus**, flooded, sometimes under water, sometimes dry.

**-inus**, a Latin suffix, meaning, (1) resemblance; (2) augmentation.

**invag'inated** (*in*, into; *vagina*, a sheath), enclosed in a sheath.

**inverse'** (*inversus*, turned about), inverted; **Inver'sion**, (1) a change of order or place; the action of Invertase; (2) **In'vert- en'zyme**, **In'vertase**, an unorganised ferment, which transmutes cane-sugar into inverted-sugar; **inver'ted**, having the apex in an opposite direction to the normal; **Inver'ted-su'gar**, a mixture of fructose and glucose by the action of invertase on cane-sugar; ~ **Superposit'ion**, the position of accessory buds below the principal bud, or one first formed (Crozier); **inver'tens** (Lat.), inverting, becoming reversed, as *inverten'tia Fo'lia*, leaves which in sleep hang downward, but touch by the upper surface, as in *Cassia*; **In'vertin** = INVERTASE; this form is chiefly employed by zoologists,

**invis'ible** (*invisib'ilis*, not to be seen), used of any organ which is not sufficiently developed to be seen.

**Involu'cel**, *Involucel'lum* (Fr., involucelle, from *involucrum*, a wrapper), a secondary partial involucre; **involucel'late**, *involucella'tus*, provided with a secondary involucre; **involu'cral**, *involucra'lis*, belonging to an involucre; **Involu'crate**, *Involucra'tus*; **involu'cred**, having an involucre of some kind; **Involu'cre**, *Involu'crum*, (1) a ring of bracts surrounding several flowers or their supports, as in the heads of Compositæ, or the umbels of Umbelliferæ; (2) the tissue of the thallus in Anthoceroteæ, grown up and overarching the embryo, afterwards pierced by the lengthening sporogonium; (3) the peridium, volva or annulus in Fungi (Lindley); (4) the indusium of Ferns; **gen'eral** ~, that which is at the base of a compound umbel; **par'tial** ~, **sec'ondary** ~, that which surrounds a partial umbel; *involu'cra Lig'nea*, Malpighi's name for the concentric zones of growth in exogens; **Involu'cret**, an involucel.

**in'volute**, *involu'tus*, **involuti'vus** (Lat., enwrapped), having the edges of the leaves rolled inwards; **Involu'tion**, (1) the act of rolling inward; (2) the return of an organ or tissue to its original state; ~ **Form**, a swollen bladder-like form of Schizomycetes, supposed to be a diseased condition of the form associated with it; ~ **Pe'riod**, the resting period; ~ **Spore**, a resting-spore; ~ **Stage**, the resting stage.

**invol'vens** (Lat.), rolling together, as *involven'tia Fo'lia* used by De Candolle, for trifoliate leaves whose leaflets rise up, unite at the summit . . . so as to form an arch which shelters the flowers, as in *Trifolium incarnatum*, Linn. (Lindley).

**io'des** (*ἰώδης*, violet-coloured), *iodi'nus*, violet; **I'odine**, an elementary body obtained from marine Algæ, etc.; **io'nides**, violet-coloured.

**irreg'ular**, *irregula'ris* (Late Lat., not according to rule), (1) wanting in regularity of form; (2) asymmetric, as a flower which cannot be halved in any plane, or one which is capable of bisection in one plane only, zygomorphic; ~ **Pelor'ia**, a monstrosity by which irregular form has become regular by symmetric development; **Irregular'ity**, *Irregular'itas*, the state of being unequal in form.

**Irritabil'ity** (*irritabilis*, easily excited), phenomena induced by stimuli, such as shock, absence or presence of light, warmth, gravity, etc.

**isabelli'nus** (Mod. Lat.), Isabella colour, a dirty tawny tint.

**isadelph'ous**, *-us* (*ἴσος*, equal to; *ἀδελφός*, a brother), equal brotherhood, the number of the stamens in the two phalanges being equal.

**I'satin**, the colouring principle of woad, *Isatis tinctoria*, Linn.

**isid'ioid**, resembling the Lichen genus, *Isidium*; **isidiif'erous** (*fero*, I bear), bearing a thallus like the genus whence it derives its name; **isid'iose**, having powdery, coral-like excrescences.

**Isid'ium** (*ἴσις* = a genus of corals; *εἶδος*, like), the coral-like elevation of a Lichen thallus with a globule on it.

**I'slands**, a term applied to isolated strands of phloëm in the xylem.

**isobilat'eral** (*ἴσος*, equal to, *bis*, twice; *latus*, *lateris*, a side), capable of being divided into two similar halves; **isob'rious** (*βριάω*, I strengthen), of equal strength, referring to the embryo of Dicotyledons; **isobria'tus**, dicotyledonary; **isocho'mous** (*χῶμα*, a mound), applied to branches springing from the same stem at the same angle; **isoch'romous** (*χρῶμα*, colour), all of one colour or hue, uniform in tint; **isocy'clic** (*κύκλος*, a circle), eucyclic, a flower having isomerous whorls; **isodiamet'ric** (*διά*, through; *μέτρον*, a measure), of equal dimensions; ~ **Cells**, those having an equal diameter in each direction; **Isodi'ody** (*δίοδος*, a passage), the condition of producing DIODES which give rise to unisexual prothallia (Van Tieghem); **isody'namous** (*δύναμις*, power), equally developed; **Isogam'ete** (*γαμέτης*, a spouse), gametes or sexual cells of similar size and appearance, which conjugate and result in a zygote; **isog'amous** (*γάμος*, marriage), used for those plants which produce isogametes; **Isog'amy**, the fusion of similar sexual cells; **isog'enous** (*γένος*, race) **Induc'tion**, used by Noll to express sensitive movements arising from a single cause; **isog'ynous** (*γυνή*, a woman), having the pistils similar; **isogy'rus** ‡ (*γυρός*, round), forming a complete spire; **Isomalt'ose** (+ MALTOSE), a product of amylodextrin, passing by fermentation into maltose; **isomer'ic**, **isom'erous**, *-us* (*μέρος*, a part), (1) having the same elements in the same proportions, but with different properties; (2) having members of successive cycles equal in number, as the petals and sepals; **isoph'agous** (*φάγω*, I eat), applied to Fungi which attack one, or several allied species (Eriksson); **isoph'orous** (*φορέω*, I carry) transformable into something else (Crozier); **Isoplan'ogametes** (*πλάνος*, wandering, + GAMETE), motile sexual cells of equal size, occurring in Algae; **isopo'lar** (*polus*, a pole), an axis of Diatom frustules is so termed when its extremities are similar (O. Mueller); **Isopro'thally** (+ PROTHALLUS), producing prothallia which are similar in sexual character (Van Tieghem); **i'soschist** (*σχιστός*, split), applied to a cell of a brood, all of which are equal in size and function (Hartog); **isosmot'ic** (*ὠσμός*, impulse, pushing), passing by osmosis in or out with equal facility; **I'sospore** (*σπορά*, seed), a spore produced by one of the **Isospo'reae**, plants having one kind of spore, as in Ferns, opposed to heterosporous; **isos'porous**, homosporous, or having one kind of spore only; **Isosp'ory**, the state of producing one sort of spore; **isoste'monous**, *nus*, having as many stamens as petals, or sepals; **Isoste'mony**, equality in number of stamens with the segments of the perianth whorls; **isosty'lous** (+ STYLUS), the styles being similar, opposed to heterostylous; **isos'tic**, Van Tieghem's term when the mother root has more than two xylem bundles; **isoton'ic** (*τόνος*, a strand, a brace) **Concentra'tion**, that degree of different solutions in which they attract water with equal force (De Vries); **isos'tomous** (*στόμα*,

a mouth), the calyx and corolla the same size; **Isot'rophyte** (*τροφή*, food; *φύτον*, a plant), a parasitic Fungus whose influence is only chemical, with but slight changes in the host (Wakker); **isot'ropous** (*τρόπος*, direction), equal torsion in development, as in valvate and contorted aestivation (K. Schumann).

**Isth'mus** (*ἰσθμὸς*, a neck of land), (1) the narrowed connection between half-cells of Desmids; (2) the girdle of such Diatoms as *Isthmia*.

**itera'to-prolif'erous** (*iteratus*, repeated + proliferous) repeatedly bearing prolifications.

**ithyphyl'lus** (*ἰθύς*, straight; *φύλλον*, a leaf), straight and stiff-leaved.

**Jag'gery**, a coarse dark sugar from the coco-nut and other palms, which produces arrack by fermentation.

**Jal'apin**, a constituent of the officinal Jalap, a purgative root, derived from *Ipomoea Purga*, Hayne.

**Jama'icin**, an alkaloid occurring in the cabbage bark-tree, *Andira inermis*, Kunth, a native of the West Indies.

**jaspid'eus**, or *iaspid'eus* (Lat., from *iasper*, jasper), a mixture of many colours arranged in small spots.

**Je'terus**, a mistake of Bischoff, copied by Lindley, for ICTERUS, vegetable jaundice.

**Joint**, an articulation, as a node in grasses or other plants; **joint'ed**, articulated, falling apart at the joints.

**jonquil'leus** (Mod. Lat.), the bright yellow of the Jonquil, *Narcissus odorus*, Linn.

**Ju'ba** (Lat., a mane), a loose panicle, with diliquescent axis; **juba'tus**, maned.

**ju'gate** (*juga'tus*, connected or yoked together), used in composition as conjugate, bijugate, etc.

**Ju'gum** (Lat., a yoke), pl., **Ju'ga**; (1) a pair of leaflets; (2) the ridges on the fruits of Umbelliferae.

**Juice**, the liquid contents of any plant-tissue; ~ **Ves'sels**, Hill's term for vascular tissue; **juice'less**, dry, exsuccous.

**jula'ceous**, *-ceus* (*julus*, Mod. Lat., an amentum or spike, + aceous), bearing catkins, amentaceous; **ju'liform** (*forma*, shape), like a catkin; **Ju'lus**, an old term for catkin, or spike, such as in *Acorus Calamus*, Linn.

**junc'oid** (*juncus*, a rush, *εἶδος*, resemblance), **junc'ous**, **jun'ceous**, rush-like.

**Junctu'ra** (Lat., a joint), an articulation or note.

**Jute**, the fibre of *Corchorus capsularis*, Linn., and *C. olitorius*, Linn.

**Juvenes'cence** (*juvenesco*, I grow young again) = REJUVENESCENCE.

**Juxtaposit'ion** (*juxta*, close to *positus*, placed), the relative position in which organs are placed.

**K**, for many words see also under the letter C.

**Kalid'ion**, *Kalid'ium*; pl., **Kalid'ia** (*καλίδιον*, from *καλιά*, granary) = CYSTOCARP.

**kamptod'romous** = CAMPTODROMOUS.

**Karyoid** (*κάρυον*, a nut, *εἶδος*, like); minute spherical bodies attached to the chlorophyll plate of Conjugatae and Desmids; **Karyog'amy** (*γάμος*, marriage), the union of gametonuclei, to form a zygote-nucleus (Maupas); **Karyokine'sis** (*κίνησις*, motion, I change); Schleicher's term for the series of changes undergone by the nucleus in cell-division; "also spelled Caryocinesis" (Crozier); it is the indirect division of Flemming; adj., **karyokinet'ic**; **Karyol'ogy** (*λόγος*, discourse), the science of the nucleus and its development and vital history (Trow); **Karyol'ysis** (*λύσις*, a loosing), the dissolution of the nucleus, in whole or part; adj., **karyolyt'ic**; **Karyomito'sis** (*μίτος*, a thread or web) = MITOSIS; **Kar'yoplasm** (*πλάσμα*, moulded), the more fluid protoplasm of the nucleus, between the nuclear threads; **Karyoso'ma** (*σῶμα*, a body), a close mass of microsomes

in a nucleus; pl. **Karyoso'mata**; **Karyosymph'ysis** (*σύμφυσις*, growing together), nuclear fusion (Hartog).

**katabol'ic** (*καταβαλλω*, I cast down), descending metabolism, the breaking up of compounds into simpler bodies; **Katab'olism**, destructive metabolism.

**katalyt'ic** = CATALYTIC.

**Katelectrot'onus** (*κατά*, down; *ἤλεκτρον*, amber; *τόνος*, strain), heightened excitation in plants due to an electric current (Hörmann).

**kathod'ic** (*κάθοδος*, a descent), that half of a leaf which is turned away from the direction in which the genetic spiral turns; the opposite of ANODIC.

**Keel**, or CARI'NA, (1) a ridge like the keel of a boat; (2) the two anterior and united petals of a papilionaceous corolla; **keeled**, carinate.

**Kenench'yma** (*κενός*, empty, *ἔγχυμα*, an infusion), permanent tissue which has lost its living contents, as cork-tissue; in Ger. "Leerzellengewebe."

**Keramid'ium** = CERAMIDIUM, or Cystocarp.

**kermesi'nus** (Mod. Lat.), carmine, a colour from Kermes.

**Ker'nel**, (1) the nucleus of an ovule, or of a seed, that is, the whole body within the coats; (2) the softer part of the pyrenocarp within the outer wall in certain Fungi.

**Ke'tones** (a variation of "Acetone"), a class of etherial oils; camphor is probably one of this class.

**Ket'tle-traps**, applied to such flowers as those of *Aristolochia*, which imprison insects until fertilization is effected.

**Key**, or **Key-fruit**, the SAMARA of sycamore or ash.

**Kid'ney-form**, **Kid'ney-shaped**, oblately cordate; crescent-shaped, with the ends rounded.

**Kind**, genus or species, a sort.

**kinet'ic** (*κίνησις*, motion) **En'ergy**, the energy of actual motion, as opposed to potential energy.

**kin'ic** (*Kina-Kina*, a name for Cinchona), pertaining to cinchona; ~ **Ac'id**, an organic acid in *Cinchona* barks.

**King'dom**, one of the highest groups of organic nature; the Vegetable ~ includes all plants.

**Klado'dium** = CLADODE.

**kleistogam'ic**, **kleistog'amous** = CLEISTOGAMIC.

**Klinomorph'y** (*κλίνω*, I bend, *μορφή*, a shape), Wiesner's term for the condition of an organ determined by the simultaneous oblique position of the principal and median planes, so that the right and left halves may be distinguished as upper and lower, resulting in a different shape of the two halves; **kleinorhom'bic** (*ῥόμβος*, a rhomb), a mineralogic term used by De Bary for oblique rhombic crystals in plants.

**Kli'nostat** = CLINOSTAT.

**Knaur** = GNAUR.

**Knee**, (1) an abrupt bend in a stem or tree-trunk; (2) an outgrowth of some tree roots; ~ **joint'ed**, geniculate; ~ **-pan-shaped**, concavo-convex, patelliform; **kneed**, geniculate.

**Knight-Darwin Law**, generally understood as "that no organic being fertilises itself for an eternity of generations"; preferably "Nature abhors perpetual self-fertilisation," *cf.* F. Darwin in "Nature," lviii., 630-632.

**knob-like** = GONGYLODES; **knobbed** = TORULOSE; **knob'by** = NODOSE.

**Knot**, (1) a node in the stem of grasses; (2) a swelling in stems at the attachment of the leaf; (3) various diseases caused by Fungi, as **Black** ~, effected by *Plowrightia morbosa*, Sacc. (Tubeuf); **Knot phase**, in nuclear-division, is also known, as skein-stage; **knot'ted**, **knot'ty**, nodose.

**Knur**, **Knurl**, a knob or hard substance = GNAUR.

**Kryp'toblast** (*κρυπτός*, hidden, *βλαστος*, a bud), a preventitious bud (Hartig).

**kyanoph'ilous** (*κύανος*, blue; *φιλέω*, I love), used of any tissue which readily absorbs blue staining; **Ky'anophyll** (*φύλλον*, a leaf), nearly pure chlorophyll freed from its associated yellow pigment, xanthophyll (Wiesner); it is bluish-green in colour.

**La'bel** (*labellum*, a little lip), (1) Grew's term for the pinnule or ultimate segment of a Fern-frond; (2) LABELLUM; **Label'lum**; (1) the third petal of Orchids, usually enlarged, and by torsion of the ovary become anterior, from its normal posterior position; (2) a similar petal in other flowers.

**la'biate**, *labia'tus* (Lat., lipped) lipped, usually bilabiate; **labiatiflor'ous**, *-rus*, used of certain Compositae with bilabiate corollas to their florets; **la'biose**, *labio'sus*, applied to a polypetalous corolla seemingly two-lipped; **La'bium**, the lower lip of a Labiate flower.

**labyrinthifor'mis** (*labyrinthus*, a structure with winding passages; *forma*, shape), marked by sinuous lines, *cf.*, DAEDALEUS.

**Lac** (Ital., *lacca*, a varnish), a resinous exudation from various tropical plants, occurring in commerce in different forms; **Lac'case**, the enzyme which produces LACQUER, from fluid lac; **lac'cate**, as though varnished; **Lac'cine**, a substance found in lac, insoluble in water, alcohol, or ether.

**lac'erate**, *lac'erus* (*lacer*, mangled); **lacera'ted**, *lacera'tus*; torn, or irregularly cleft.

**Lach'rima** (Lat., a tear), a drop of gum or resin exuded from a tree; also spelled **Lach'ryma** and **Lacrima**; **lach'ryrimiform**, *lachrimiform'is* (*forma*, shape), tear-shaped; sometimes but less correctly spelled **lach'rymaeform**, etc.

**Lacin'ia** (Lat., the flap of a garment), a slash or slender lobe; **Lacinia'tion**, fission; **lacin'iate**, *lacinia'tus*, slashed, cut into narrow lobes; **lacin'iform** (*forma*, shape), fringe-like (Crozier); **Lacin'ule**, (1) a diminutive lacinia or lobe; (2) the incurved point of the petal in many Umbelliferae; **lacin'ulate**, **lacin'ulose**, finely laciniate, possessing lacinulae.

**Lac'quer**, a Japanese varnish; *cf.*, LAC and LACCASE.

**Lac'tase** (*lac*, milk), Beijerink's name for an enzyme which inverts sugar, but is distinct from Invertase; **Lac'teals**, **Lac'tifer** (*fero*, I bear), **Lac'tents**, Grew's names for laticiferous ducts; **lac'tens** (Lat.) milky, white as milk; **lactes'cent**, *lactes'cens*, yielding milky juice; **lactic'olor** (*color*, colour) milk-white; **lacti-f'erous**, Grew's word for laticiferous; **Lac'tose**, milk-sugar; the sweet principle of milk, and stated to occur in the fruit of *Achras Sapota*, Linn.

**Lactuca'rium**, the dried juice of the lettuce, *Lactuca sativa*, Linn., containing an active principle, **Lac'tucine**.

**Lacu'na** (Lat., a hole or cavity), (1) an air-space in the midst of tissue; (2) a depression on the thallus of a Lichen; **lacu'nar**, pertaining to or arising from lacunae; **~ Tis'sue**, thin-walled cells, forming irregular trabeculae radially traversing the intercellular cavity of the stem of *Selaginella*; it may be regarded as the equivalent of the Bundle-Sheath of most other vascular Cryptogams; **lacu'nose**, *lacuno'sus*, (1) when the surface is covered with depressions; (2) perforated with holes; **lacu'norimo'sus**, marked with irregular cracks and excavations; **lacu'noru'gose**, *~-rugosus*, having irregular wrinkles, as the stone of the peach.

**lacus'tral** (*lacus*, a pond or lake), H.C. Watson's term for plants which are usually floating in water or immersed; **lacus'trine**, *lacus'tris*, belonging to, or inhabiting lakes or ponds; the form *lacus'ter* has been introduced recently.

**laev'igate**, *laeviga'tus* (*levigatus*, smooth, slippery), smooth, as if polished.

**lae'vis** (*levis*, smooth), smooth, in the sense of not being rough.

**lage'niform**, *lageniform'is* (*lagena*, a flask ; *forma*, shape), shaped like a Florence flask.

**lago'pus** (λαγώπους, hare's foot), hare-footed, densely covered with long hair.

**Lam'el**, *Lamel'la* (Lat., a thin plate or scale), a thin plate ; pl., **Lamel'lae**, the gills of Agarics ; **lam'ellar**, *lamella'ris*, composed of thin plates; **lam'ellate**, *lamella'tus*, made up of thin plates, as the hymenium of the mushroom ; **lamel'liform** (*forma*, shape), in the shape of a plate or scale; **lam'ellose**, *lamello'sus* = LAMELLATE ; **Lamel'lulae**, the gills of Fungi.

**Lam'ina** (Lat., a thin leaf), the limb, blade, or expanded part of a leaf ; ~ **prolig'era** ; ~ **sporig'era**, the disk or centre of the apothecium of a Lichen ; ~ **lamina'ted**, consisting of plates or layers ; ~ **Bulb**, a tunicated bulb, as a hyacinth ; **lamina'ting**, separating into layers.

**La'na** (Lat.) wool, or woolly covering ; **la'nate**, *lana'tus*, clothed with woolly and intergrown hairs.

**lan'ceolate**, *lanceola'tus* (Lat., armed with a little lance), (1) narrow, tapering to each end ; Linnaeus used it for a leaf having nearly similar extremities, but in modern use, the base is usually somewhat broadened, and the greatest breadth at about one-third from the base ; (2) the primitive meaning is preserved in *Carduus lanceolatus*, Linn. ; ~ **has'tate**, a hastate leaf, with the principal lobe lanceolate; ~ **sag'ittate**, a sagittate leaf, the middle lobe lanceolate; **lance-o'vate** (Crozier), lanceolate ovate, indicative of a form intermediate between the two named terms ; **lance-shaped**, lanceolate.

**la'nose**, *lano'sus* (Lat.) woolly, *cf.*, LANATE.

**lanug'inose**, **lanug'inous**, *lanugino'sus* (Lat.) woolly or cottony, clothed with **Lanu'go** (Lat.), woolliness ; long and interwoven hairs.

**lapid'eus** (Lat., stony), **lapillo'sus**, stony, as the seeds of "stone fruits" : **lap'idose**, *lapido'sus*, growing amongst stones.

**lappa'ceous**, *lappa'ceus* (Lat.) bur-like, hamate.

**lar'val** (*larva*, a mask), (1) applied to the resting stage, as the sclerotium of ergot ; (2) the early form of certain Conifers, whose perfect and adult form is very different ; **larva'tus** (Lat.) personate.

**lasian'thus** (λάσιος, shaggy ; ἄνθος, a flower), woolly-flowered ; **lasiocar'pous** (καρπὸς, fruit), pubescent-fruited.

**latebro'sus** (Lat., full of lurking places), hidden.

**la'tent** (*latens*, hidden), dormant ; ~ **Bud**, an adventitious bud ; ~ **Pe'riod**, resting-stage.

**Lat'era**, pl. of **Lat'us** (Lat., a side), the sides ; **lat'eral**, *latera'lis*, fixed on or near the side of an organ ; ~ **Bud**, adventitious bud ; ~ **Dehis'cence**, bursting or opening at the side ; ~ **Nucle'olus**, ~ **Nu'cleus**, *cf.*, PARANUCLEUS ; ~ **Plane**, the vertical plane at right angles to the antero-posterior plane, as of a flower ; ~ **View** of a Diatom frustule, when the valves are seen in front view, the girdle being then in side view ; **Lateral'ity**, used by Sachs for SYMMETRY, both radial and dorsi-ventral ; **laterifo'lious** (*folium*, a leaf), growing on the side of a leaf at the base ; **lateriner'vis**, **lateriner'vius** (*nervus*, a nerve), straight-veined, as in grasses ; **lateristip'ulus** ‡ (+STIPULA) having stipules growing on its sides.

**lateric'ious** or **laterit'ious**, *lateric'ius*, *laterit'ius* (Lat., made of bricks), brick-red.

**La'tex** (Lat., juice), (1) the milky juice of such plants as spurge or lettuce ; (2) the moisture of the stigma ; (3) the gelatinous matter surrounding the spores in some Fungi ; ~ **Cells**, laticiferous

coenocytes ; ~ **Gran'ules**, starch or other granules floating in the latex ; ~ **Tubes**, laticiferous vessels.

**laticif'erous** (*latex, laticis*, juice, *fero*, I bear), latex-bearing ; ~ **Cells**, structures which are not cell-fusions ; ~ **Coe'nocytes**, branched cells or vessels like cells containing latex ; ~ **Tis'sue**, the system of cells or vessels ; ~ **Ves'sels**, the tubes or similar structures which have milky juice, usually branched syncytes, the walls between adjacent cells being absorbed.

**latifo'liate, latifo'lious**, *latifo'lius* (Lat.), broad-leaved.

**latisep'tal** (*latus*, broad, *septum*, a hedge), applied to those Crucifers which have broad septa in their silicles as Honesty, *Lunaria annua*, Linn. ; **latisep'tate**, *latisep'tus*, with broad partitions.

**lat'ticed**, cross-barred ; ~ **Cell** = SIEVE-TUBE.

**Lau'rin**, an acrid principle from the berries of *Laurus nobilis*, Linn.

**lav'ender**, pale bluish grey ; the colour of the flowers of *Lavandula vera*, DC.

**lax**, *lax'us* (Lat.), loose, distant.

**Lay'er**, (1) the Stroma or receptacle of Fungi ; (2) in propagation, a branch caused to root whilst still connected with the parent ; **Lay'erage**, term proposed by L. H. Bailey for propagation by layering, or the state of being so multiplied ; **Lay'ering**, the art of making layers ; **Lay'ing**, a gardener's term for the preceding.

**lazuli'nus** (Mod. Lat.), ultramarine blue, a pigment obtained from "Lapis Lazuli."

**lead-col'oured**, dull grey ; *cf.* PLUMBEUS.

**Lea'der**, the primary or terminal shoot of a tree.

**Leaf**, the principal appendage or lateral organ borne by the stem or axis ; it is a **simple** ~ when undivided, **compound** ~ when divided into distinct parts ; ~ **Arrang'ement**, see PHYLLOTAXIS ; ~ **Blade**, = LAMINA ; ~ **Bud**, a bud which develops into a leafy branch ; opposed to a "Flower Bud" ; ~ **Cy'cle**, in phyllotaxis, a spiral which passes through the insertions of intermediate leaves till it attains the next leaf exactly above its starting point ; ~ **Fall**, defoliation ; ~ **Green** = CHLOROPHYLL ; ~ **Pores** = STOMATA ; ~ **Scar**, the mark or cicatrix left by the articulation and fall of a leaf ; ~ **Sheath**, the lower part of the petiole which more or less invests the stem ; ~ **Stalk**, = PETIOLE ; ~ **Ten'dril**, one which is a transformed leaf ; ~ **Trace**, all the common bundles in a stem belonging to one leaf.

**Leaf'ing**, the unfolding of leaves ; **leaf'less**, wanting leaves ; **Leaf'let**, the blade or separate division of a compound leaf ; **leaf'like** = FOLIACEOUS ; **leaf'y**, full of leaves.

**leath'er-yel'low**, a vague term for the tint of tan or buff leather ; alutaceous.

**leath'ery**, tough, coriaceous.

**lecanor'ine**, resembling the apothecium of the genus *Lecanora*, which has a paler margin arising from the thallus.

**lecid'eiform** (*forma*, shape), **lecid'eine**, like the apothecium of *Lecidea*, which has a margin of the same colour as the disk.

**Le'cithin** (λήκυθος, an oil-flask), a type of white, waxy, phosphorous-containing substances, some of which have been separated from the seeds of maize, peas and wheat.

**lecot'ropal** (λέκος, a dish, τροπή, a turning), shaped like a horse-shoe, as some ovules, *cf.* LYCOTROPOUS.

**Le'cus** (λέχος, a bed) = CORM.

**leek-green**, vivid green, prasinus.

**left**, sinistrorse ; see Appendix C.

**legit'imate** (*legitimus*, allowed by law) **Fertiliza'tion**, in dimorphic or trimorphic plants, fertilization by its own-form pollen, as short-styled flowers by pollen from other short-stamened flowers, etc. (Darwin).

**Leg'ume**, *Legu'men* (Lat., pulse), the

seed-vessel of Leguminosae, one-celled and two-valved, but various in form; **Legu'min**, an albuminoid from pulse, vegetable casein; **legu'minous**, *legumina'ris*, (1) pertaining to a legume; or (2) to the order Leguminosae.

**lem'on-col'oured**, pale, pure yellow, citrinus.

**lens-shaped**, lentil-like, doubly-convex, lenticular.

**Len'ticel**, *Lenticel'la* (*lens*, *lentis*, a lentil), lenticular corky spots on young bark, corresponding to epidermal stomata; syn. **Lent'icelle** (Crozier); **lenticella'tus** (Mod. Lat.), having lenticels; **Lentic'ulae**, "the spore-cases of certain Fungals" (Lindley); **lentic'ular**, *lenticula'ris*, **lentiform'is** (*forma*, shape), like a doubly convex lens.

**lentig'inose**, **lentig'inous**, *lentigino'sus* (Lat., full of freckles), minutely dotted as though freckled.

**leoch'romus** (λέων, a lion, χρῶμα, colour), tawny, the colour of a lion's hide; **leoni'nus** (Lat., pertaining to a lion), something of the same tint.

**Lep'al**, *Lep'alum* (Mod. Latin, from λεπίς, a scale), a nectary originating in a barren transformed stamen (Henslow).

**Lepan'thium** (λεπίς, a scale, ἄνθος, a flower), "a petal which contains a nectary" (Crozier); **Lepic'ena** (κενός, empty), the glume in grasses, by Richard used for the lower pair of glumes; **Lep'ides**, scales, usually attached by their centre; **lepidoden'droid** (*Lepidodendron*, εἶδος, resemblance), like the fossil genus *Lepidodendron*, a carboniferous Lycopod.

**Lepidopteroph'ilae** (Lepidopteron, φιλέω, I love), applied to plants which are fertilized by lepidopterous insects.

**Lep'idophyte**, *Lepidophy'tae* (λεπίς, a scale; φυτόν, a plant), L. Ward's term for Lepidodendroid fossil plants.

**lep'idote**, *lepido'tus* (λεπιδώτος, scaly), beset with small scurfy scales.

**Lepio'ta** (λεπίς, a scale, οὖς, ὠτός, an ear), "the annulus of certain Fungals" (Lindley); but *Lepiota* is a genus of Agarics, having been proposed by Persoon for a section of *Agaricus*; **Le'pis**, a scale.

**Lepis'ma** (λέπισμα, peeled bark), a membranous scale in some Ranunculaceae, an apparently aborted stamen in *Paeonia papaveracea* Andrz.; several of them enclose the ovary.

**Lep'ra** (λέπρα, leprosy), a white mealy matter extruded from the surface of some plants; **lep'rose**, **lep'rous**, *lepro'sus*, scurfy.

**leptoder'mous** (λεπτός, thin, delicate, δέρμα, skin), thin-coated, used of moss-capsules when pliable; **Lep'toforms** (*forma*, shape), heteroecious Fungi having teleutospores only, which as soon as they arrive at maturity germinate on living plants; **Lep'tome**, an abbreviation of **Leptomes'tome** (μεστός, filled); Haberlandt's expression for the phloëm-like portion of the vascular bundles in vascular plants; **Lep'tomin**, a substance found in the leptome of some plants, especially in the sieve-tubes and laticiferous vessels, the presumed function being to convey oxygen (Raciborski); **Lep'tophlo'ëm** (+ PHLOËM), rudimentary phloëm, for storage or conduction of food material (Vaisey); **leptophyl'lous**, *-lus* (φύλλον, a leaf), slender-leaved; **leptosporan'giate** (σπορά, seed, ἀγγεῖον, a small vessel), having leptosporangia; **Leptosporan'gium**, a sporangium derived from one superficial cell, as in the true Ferns, and not from a group of cells as in Ophioglossaceae; **leptoti'chus** (τεῖχος, a wall), thin-walled, applied only to tissue.

**Lepyrophyl'ly** (λέπυρον, a scale, φύλλον, a leaf), Morren's term for arrest of the testa in the leaf-stage.

**lett'ered**, with spots resembling letters; *cf.* GRAMMICUS.

**leucan'thous**, *-thus* (λευκός, white or grey), white flowered; **Leu'cin** or

"Amidocaproic acid" is a white substance, first found in animals, afterwards found in plants; **Leu'cite**, Van Tieghem's name for LEUCOPLAST; he further modifies the term by prefixing **amylo-**, **chloro-**, **chromo-**, **elaio-**, **oxali-**, for various modifications; furthermore, **act'ive ~**, or **pas'sive** or **reserve' ~**, according to function; **Leu'coplast**, **Leucoplas'tid** (*πλαστὸς* moulded), A. F. W. Schimper's term for the specialised colourless protoplasmic granule; syn. ANAPLAST (A. Meyer), and LEUCITE (Van Tieghem); **leucophyl'lus** (*φύλλον*, a leaf), white-leaved; **Leu'cophyll-grain** = LEUCOPLAST; **Leu'cosomes** (*σῶμα*, a body), small spherical bodies, apparently composed of albuminoids inclosed in the leucoplasts of Commelynaceae (Zimmermann).

**leviga'tus** (Lat.) smooth, slippery; in botanical Latin it is usually spelled "laevigatus."

**le'vis** (Lat.) smooth, in the sense of not rough; from the time of Linnaeus downward this has been spelled botanically as "laevis."

**Le'vulose** (*laevus*, on the left side) = Fructose or fruit-sugar; it deflects polarised light to the left.

**Lia'na**, **Lia'ne** (Span. liar, to tie), pr. lēah-nă, lē-ahn; luxuriant woody climbers in the tropics with stems of anomalous structure; **lia'noid** (*εἶδος*, like), having a liana-like habit.

**Li'ber** (Lat. inner bark), the inner bark, which is often fibrous, the phloëm of the vascular system containing the bast-tissue; **~ Fi'bres**, bast-fibres.

**li'ber** (Lat. free), having no cohesion with the adjoining parts; **libera'tus** (Lat.), freed.

**liberolig'neous** (*liber*, inner bark, *lignum*, wood), applied to a conjoint bundle composed of bast and wood elements; **lib'riform** (*forma*, shape) **Cell**, a narrow, thick-walled cell of woody tissue resembling bast, wood-fibre (Crozier); **~ Fi'bres**, substitute fibres reduced in form (Germ., Ersatzfasern).

**Li'chen** (*λειχήν*, lichen), a Cryptogam which forms a thallus which is either shrubby, leafy, crustaceous or powdery, generally regarded as a symbiosis of hyphal filaments with algal gonidia; **~ Al'gae**, the gonidia or green bodies in the thallus; **~ Fun'gi**, the filaments of hyphae, which are usually interwoven with the gonidia; **~ Starch** = LICHENIN; **Li'chenin**, the peculiar starch-like body in *Cetraria islandica*, Linn., and other Lichens; **Li'chenism**, the special symbiosis between alga and fungus occurring in Lichens; **li'chenoid** (*εἶδος*, like), irregularly lobed, as Lichens; **Lichenog'rapher**, **Lichenog'raphist** (*γράφω*, I write) = Lichenologist; **Lichenog'raphy**, the study of Lichens; adj. **lichenograph'ic**; **Lichenol'ogist** (*λόγος*, discourse), a student or writer on Lichens; **Lichnoër'ythrine** (*ἐρυθρὸς*, red), Sorby's name for the red colouring matter of Lichens; **Lichnoxan'thine** (*ξανθὸς*, yellow), the same observer's term for the yellow colouring in Lichens.

**Lid** (1) the operculum of moss-capsules (Hooker); (2) the distal extremity of the ascidium of *Nepenthes* which forms a lid-like appendage to the pitcher; (3) the areas of pollen-grains which are detached to permit the pollen-tubes to pass; **~ Cells**, the terminal cells of the neck of the archegonium which temporarily close the canal; the stigmatic cells.

**Life**, the state in which plants can grow or perform their functions of absorption, assimilation, reproduction, etc.; **~ Cy'cle**, the course of development from any given stage to the same again, as from the seed to the seed once more.

**Ligamen'tum** ‡ (Lat., a band or bandage) = RAPHE.

**Light-absor'ption**, the ratio of the whole of daylight to that of the

place in which the plant grows (Wiesner).

**lig'neous, lig'nous,** *lig'neus* (Lat.), woody.

**lignic'olor** (*lignum*, wood, *color*, colour), tawny, the colour of freshly cut wood; **lignic'olous** (*colo*, to inhabit), applied to Fungi which live on timber; **lignif'erous** (*fero*, I bear), used of branches which form wood only, but no flowers; **Lignifica'tion** (*facio*, I make), the hardening or thickening of the cell-wall by secondary deposits; **lig'nified**, converted into wood; **lig'niform** (*forma*, shape), like wood; **lig'nify**, to turn into wood; **Lig'nin** or **Lig'nine**, an incrusting or impregnating substance on the cell-wall, producing woody tissue; it is insoluble in water or ether, soluble in alcohol and alkalis, and is the remainder after the cellulose has been removed by chemical means; **Ligni'reose** (deriv.?), Payen's term for a constituent of Lignin, only slightly soluble in water; **Lig'nite**, a fossil or semi-fossil woody substance; jet is an example; **Lignocel'lulose** (+ Cellulose), see CELLULOSE; **Lig'none**, a substance which differs from Lignin by being insoluble in water, alcohol and ether, but soluble in ammonia, potash, soda (Payen); **Lig'nose**, a constituent of Lignin, but soluble only in potash and soda solutions (Payen); **lig'nose**, *ligno'sus*, woody, ligneous; **Lig'num**, wood, that within the cortex, including both alburnum and duramen.

**Lig'ule**, *Lig'ula* (Lat., a little tongue); (1) a strap-shaped body, such as the limb of the ray florets in Compositae; (2) a lobe of the outer corona in *Stapelia* (N. E. Brown); (3) the thin, scarious projection from the top of the leaf sheath in grasses; (4) a narrow membranous, acuminate structure, internal to the leaf-base in *Isoëtes* and *Selaginella*; (5) an appendage to certain petals, as those of *Silene* and *Cuscuta* (A. Gray); **lig'ular**, Russow's term for that leaf-face of *Selaginella* which is turned towards the ligule; *cf.* ALIGULAR; **lig'ulate**, *ligula'tus*, furnished with a Ligule; **ligu'liform**, *liguliform'is* (*forma*, shape), strap-shaped; **liguliflor'ate, liguliflor'ous**, *-rus* (*flos*, *floris*, a flower), having ligulate florets, as *Hieracium*.

**li'lac**, pale warm purple, the colour of the flower of *Syringa vulgaris*, Linn.; **Li'lacine**, a bitter principle from the bark of the same plant; **lila'ceus, lilaci'nous**, *-nus*, lilac in colour.

**lilia'ceous**, *-ceus* (*lilium*, a lily + aceous), lily-like.

**limaciform'is** (*limax*, *limacis*, a slug, *forma*, shape), applied by Koerber to those Lichen spores which are slug-shaped.

**Limb**, *limb'us* (Lat., a border or hem); (1) the border or expanded part of a gamopetalous corolla, as distinct from the tube or throat; (2) the lamina of a leaf or of a petal; **lim'bate**, *limba'tus*, bordered, as with another colour.

**Lime**, used for calcium carbonate in plants; **~ Gran'ules**, lime-knots in Myxogastres, concretions occurring in the capillitium; **~ Scales**, the chalk-glands which excrete lime, as with certain Saxifrages.

**Li'mes** (Lat., a cross-path or boundary) **commu'nis** ‡ the collum or neck of a plant; **lim'itary**, placed at the limit, as a guard; **lim'iting Cell** = HETEROCYST.

**limnet'ic** (λίμνη, a pool), applied to plants which grow in pools or their neighbourhood.

**limo'nius** (Mod. Lat.), lemon-like, as to colour; citrinus.

**Line**, *Li'nea* (Lat., a line or thread), as a measure of length, the twelfth part of an inch, in millemetres, 2·1167; the Paris line is mm. 2·325; *Li'nea transversa'lis*, the ostiolum of some Fungi; **Lines of Growth**, the limits of each year's growth in woody stems; **~ of Vegeta'tion**, for any given species,

those obtained by joining all the places in a given direction where the species stops; the resultant lines map out the distribution of the said species (Kerner); **linea'lis** (Lat., consisting of lines), measuring about a line; **lin'ear**, *linea'ris*, narrow, several times longer than wide; **lin'eate**, *linea'tus*, marked with lines, *linea'ta Va'sa* ‡, vessels transversely marked, as annulate ducts or tracheids; **lineat'ipes** ‡ (*pes*, a foot), having a lined or striated foot-stalk; **lined** = lineatus, striatus; **lin'eolate**, *lineola'tus*, marked with fine or obscure lines.

**linguiform'is** (*lingua*, a tongue, *forma*, shape), tongue-shaped; **ling'ulate**, *lingula'tus*, also means tongue-shaped.

**Li'nin** or **Li'nine** (λίνον, a thread), the hyaloplasmic filaments of the nucleus in repose (Schwarz).

**Linne'an Syst'em**, the artificial classification devised by Linnaeus, based upon the number and position of the stamens.

**Li'nolein** (*Linum*, flax, *oleum*, oil), "the glyceride of lineoleic acid found in linseed oil."

**Liorhi'zae** (λεῖος, smooth, ῥίζα, root), Van Tieghem's name for Monocotyledons and Nymphaeaceae, the root-hairs being of exodermic origin.

**Lip**, (1) one of the two divisions of a bilabiate corolla or calyx, that is, a gamopetalous or gamosepalous organ cleft into an upper (superior or posterior) and a lower (inferior or anterior) portion; (2) the labellum of Orchids; **~ Cells**, two narrow, lignified cells on the sporangia of some annulate Ferns, distinct from the annulus, which are the first to separate on dehiscence; *cf.* STOMIUM.

**Lip'ase** (λίπος, grease), a fat-splitting enzyme occurring in oily seeds; **Lip'ochrome** (χρῶμα, colour), the yellow pigment of flowers, so named by Hansen from its resemblance to an animal pigment; **Lipocy'anin** (κύανος, blue), the blue pigment of some plants.

**lipox'enous** (λείπω, I leave, ξένος, a host), deserting its host; **Lipox'eny**, the desertion of a host-plant by a parasite to complete its development on reserve materials previously obtained from the host, as in the falling away of Ergot, the sclerotium of *Cordyceps purpurea*, Tul.

**lipped**, = LABIATE.

**Li'quor** (Lat. a liquid) **Am'nios** (*cf.* AMNIOS), a term borrowed from zoology for the fluid "contained in the sac within which the embryo is engendered" (Lindley).

**Lirel'la** (dim. of *lira*, a ridge), in Lichens an oblong apothecium with a furrow along its middle, as in *Opegrapha*; **lirel'late**, **lirel'line**, lirella-like; **lirel'liform**, *lirelliform'is* (*forma*, shape), shaped like a lirella.

**lisigenet'ic**, = LYSIGENETIC.

**Lithobib'lion** (λίθος, a stone, βιβλίον, a paper or scroll) = LITHOPHYL; **Lith'ocarp** (καρπός, fruit), fossil fruit; **Lith'ocyst** (κύστις, a bag or pouch), a crystal cell; **lithoph'ilous**, saxicolous, dwelling on rocks; **Lith'ophyl** (φύλλον, a leaf), a fossil leaf or leaves; **Lith'ophytes** (φυτόν, a plant), plants which grow on stones, but derive their nourishment from the atmosphere as saxicolous Lichens; **lithosperm'ous** (σπέρμα, seed), having hard, stony seeds; **Lithox'yle** (ξύλον, wood), fossil wood.

**Lit'mus**, a violet colour derived from several species of Lichens, such as *Rocella*, etc.

**lit'oral**, *litora'lis* (Lat. pertaining to the sea-shore), belonging to or growing on the sea-shore (A. Gray adds "river banks" which strictly speaking is "riparian"); used by H. C. Watson for plants of the sea-shore; frequently spelled **lit'toral**, *littora'lis*.

**litua'tus** ‡ (*lituus*, a crooked staff)

forked, with the points turned a little outward.

**litura'tus** ‡ (*litura*, a smearing), when spots are formed by an abrasion of the surface.

**li'vens, liv'id**, *li'vidus* (Lat.), pale lead colour.

**liv'er-col'oured** = HEPATICUS.

**Liv'erworts**, Hepaticae.

**Lobe**, *Lo'bus* (λοβός, the lower part of the ear), any division of an organ or specially rounded division; **Mid'dle** ~, a small conical or tongue-shaped growth arising from between the two side-lobes of a Fern-prothallus; **lo'bate**, *loba'tus*, divided into or bearing lobes; **Lo'belet**, a small lobe; **Lob'iolus**, a small lobe into which some Lichen-thalli are divided; **Lob'ule**, (1) a small lobe, a lobulet; (2) Spruce's word for the minor lobe of the leaf of Hepaticae, the auricle of Nees and others; **lob'ulate**, *lobula'tus*, having small lobes; **Lob'ulus**, a small lobe.

**Local'ity** (*localitas*, a place), the approximate geographic position of an individual specimen.

**locel'late**, *locella'tus*, dividing into LOCELLI; **Locel'lus** (dim. of *loculus*, a little compartment), a secondary compartment, as a primitive pollen-sac, which, by the destruction of a septum, unites with an adjoining locellus to form an anther-loculus; **Loc'ulament**, *Loculamen'tum* (Lat. a case or box); (1) = LOCULUS of a carpel; (2) "the perithecium of certain Fungals" (Lindley); **loc'ular**, *locula'ris*, having cavities or Loculi, denoted further by the addition of **uni-**, **bi-**, **tri-**, etc., for one-, two-, three- etc., celled; **locula'tus**, divided into cavities; **loculici'dal** (*caedo*, I cut), the cavity of a pericarp dehiscent by the back, the dorsal suture; **loc'ulose**, *loculo'sus*, **loc'ulous**, divided internally into cells, partitioned; **Loc'ulus**, (1) the cavity of an ovary or anther; (2) the periderm of certain Fungals (Lindley).

**Locus'ta** (Lat. crayfish or locust), the spikelet in grasses.

**Lod'icule**, *Lodicu'la* (Lat. a small coverlet), a small scale outside the stamens in the flower of grasses; glumella.

**Lol'iophyll**, Étard's name for chlorophyll from *Lolium* and other grasses.

**lomenta'ceous**, *-ceus* (*lomentum*, bean-meal), bearing or resembling Loments; **Lo'ment**, *Lomen'tum*, a legume which is contracted between the seeds, falling apart at the constrictions when mature into one-seeded joints.

**Longistamin'eae** (*longus*, long + STAMEN), Delpino's term for flowers with long stamens which are wind-fertilised.

**Longitu'dinal Sys'tem**, an old term for fibro-vascular system (Crozier).

**Longitu'do** (Lat. length), in the direction of growth.

**longis'simus** (Lat.), very long.

**longitudinal'iter, longitudina'lis** (Lat.), in the direction of the length.

**loose**, (1) as applied to inflorescence, lax, as a panicle; (2) hardly coherent, as loose tissue.

**lophios'tomate** (λοφιά, a crest, στόμα, a mouth), having crested apertures or openings.

**lor'ate**, *lora'tus* (*lorum*, a thong), strap-shaped, ligulate.

**Lori'ca** (Lat. a leather corslet), (1) the entire silicious covering of the frustule in Diatoms; (2) formerly used for the TESTA; **lor'icate**, [clothed in mail] "equally narrow throughout" (Braithwaite), is probably a slip for LORATE.

**Lo'rulum** (Lat. dim. of *lorum*, a thong), the filamentous and branched thallus of some Lichens.

**low**, small as compared to its allies; ~ **Yeast**, that which is found at the bottom of a fermenting liquid: Germ. "Unterhefe"; **low'ered**, used when the lip of a bilabiate corolla is inclined at about a right angle to the tube.

**lu'bricous**, *lu'bricus* (Lat.), smooth, slippery.

**lu'cens, lu'cid**, *lu'cidus* (Lat.), shining, referring to the surface.

**lumbrica'lis** (*lumbricus*, a maw-worm), worm-shaped, as in some Algae; **lum'bricous**, shaped like an earthworm.

**Lu'men** (Lat., light, opening), the space which is bounded by the walls of an organ, as the central cavity of a cell; **Lu'minous Line**, in Malpighiaceae, etc., on the testa of the seeds, is due to a modification of the outer layer.

**lu'nar** (*luna*, the moon), (1) pertaining to the moon; (2) LUNATE; ~ **Plants**, Grew's term for those which twine "with the moon," against the sun, sinistrorse; **lu'nate**, *luna'tus*, half-moon shaped; **luna'ted**, having lunar markings (Crozier); **lu'niform** (*forma*, shape), crescent-shaped, (Crozier); **lu'nulate**, *lunula'tus*, diminutive of lunate.

**Lu'pinite**, a bitter substance occurring in the leaves of the white lupin, *Lupinus albus*, Linn.; **Lu'pinine**, an alkaloid in the flower-buds of *Lupinus luteus*, Linn.

**Lu'pulin**, (1) a secretion from the glandular hairs of the hop-strobiles, *Humulus Lupulus*, Linn., which gives a bitter taste; (2) see LUPULINIC GLANDS; **lu'puline, lupuli'nous**, *lupuli'nus*, resembling a hop-strobile; **lupulin'ic Glands**, the resinous glandular bodies within the scales of the female flower of the hop, "also called Lupulin" (Stormonth); **Lu'pulite**, a lupulinic gland.

**lu'rid**, *lu'ridus* (Lat., sallow, wan), in botany, dingy brown or yellow; **lurid'ic Acid** occurs in *Boletus luridus*, Schaeff.

**Lu'sus** (Lat. a game), a sport or variation from seed or bud; ~ **Natu'rae**, a monstrosity.

**lu'teo-fus'cus** (*luteus*, yellow, *fuscus*, swarthy), blackish-yellow; **Lu'teolin**, a yellow colouring matter found in weld, *Reseda Luteola*, Linn.; **lu'teolus** (Lat.) yellowish; **lutes'cent**, *lutes'cens*, becoming yellow; **lu'teus** (Lat.) a full yellow.

**Luxu'ria, Luxu'ries** (Lat. rankness), exuberant growth; **luxu'riant**, *luxu'rians* (Lat.), usually signifies that the organs of nutrition are more developed than those of fructification.

**lycoper'dioid** (*Lycoperdon*, a genus of Gasteromycetes, *εἶδος*, like), resembling a puff-ball.

**lycopodia'ceous** (*Lycopodium*, + aceous), resembling the genus *Lycopodium*.

**lycot'ropal** = **lycot'ropous**, *-pus* (*λύκος*, a door-knocker, *τροπή*, a twining), when an otherwise orthotropous ovule is bent like a horse-shoe.

**Lymph**, *Lym'pha* (Lat. spring water), Grew's term for sap; **Lymph'ae** ~ **Ducts** = DUCTS; **lymphat'ic**, clear, pellucid; ~ **Ducts** = DUCTS.

**lysigenet'ic, lysigen'ic, lysig'enous** (*λύσις*, a loosing, *γένος*, offspring), when a cavity is formed by disorganisation or dissolving of cells.

**ly'rate**, *lyra'tus* (*λύρα*, a lute or lyre), lyre-shaped, pinnatifid with the terminal lobe large and rounded, the lower lobes small; **lyrati-parti'tus**, ~**-sec'tus**, lyrately pinnate; **lyre-shaped** = LYRATE.

**Ly'sis**, (*λύσις*, a loosing), the metamorphosis of a part.

**Mace**, the arillus of the nutmeg.

**Macera'tion**, (*maceratio*, a steeping), steeping, as in the case of barley for malting.

**Mac'ro-** (*μακρὸς*, long), in Greek compounds = long; frequently but improperly used for **mega-**, or **megalo-**, large.

**macran'drous** (*μακρὸς*, long; *ἀνήρ, ἀνδρὸς*, a man), having large or long male plants in Algae (Crozier); **macran'thus** (*ἄνθος*, a flower), long flowered; **macrobiostigmat'ic** (*βίος*, life, *στίγμα*, a puncture), Delpino's term for those plants whose stigmas remain capable of fertilization until the anthers are mature;

**Mac'roblast** (*βλαστὸς*, a bud), a normal wood bud (Hartig); **macroceph'alous**, *-lus* (*κεφαλή*, head), big headed, dicotyledonous embryos with consolidated cotyledons; **Macroconid'ium** (+ CONIDIUM), a large conidium produced at a different period in the life-cycle to a MICROCONIDIUM; **Mac'rocyst** (*κύστις*, a bag or pouch), one of the vesicles which originate the fertile tissue in *Pyronema*, etc. (Tulasne); **Macrodi'odange** (+ DIODE, *ἀγγεῖον*, a vessel) Van Tieghem's term for MACROSPORANGIUM; **Macrodi'ode**, the same botanist's word for MACROSPORE; **Macrogam'ete** (*γαμέτης*, a spouse) = MEGAGAMETE; **Macrogonid'ium** (*γόνος*, offspring, *εἶδος*, like) a gonidium of large size in comparison with others produced by the same species; *cf.* MEGALOGONIDIUM; **macrophyl'line** (*φύλλον*, a leaf), **macrophyl'lous**, having elongated leaflets or leaves; **macrophyt'ic** (*φυτὸν*, a plant), used by Schimper for the large forms of marine Algae; **Mac'roplast** (*πλαστὸς*, moulded), Lankester's term for large disc-like plastids in *Bacterium rubescens*; **macrop'odal**, **macrop'odous** (*ποῦς*, *ποδὸς*, a foot), used of an embryo with enlarged hypocotyl forming the greater part of its mass; (Crozier adds another meaning, applied to a leaf with a long petiole); **Macrosclе'reids** (*σκληρὸς*, hard), Tschirch's term for long stone-cells with blunt ends; **macroscop'ic** (*σκοπέω*, I see), viewed by the naked eye, opposed to microscopic; **Macrosporan'gium** (*σπορὰ*, seed, *ἀγγεῖον*, a vessel), (1) a sporangium containing macrospores; (2) the nucellus of the ovule of Phanerogams; **macrosporan'giate**, possessing macrosporangia; ~ **Flow'ers**, carpellary flowers, pistillate flowers destitute of stamens; **Mac'rospore**; (1) the larger kind of spore in vascular Cryptogams; (2) the embryosac in Phanerogams; **Macrospor'ophyll** (*φύλλον*, a leaf) = CARPEL; **macrosporophyl'lary**, carpellary; **macrosty'lous** (*στῦλος*, a post), long-styled; **Macrosym'biont** (*συμβιόω*, I live with), the larger of the associated organisms in symbiosis; **Mac'rotherm** (*θέρμη*, heat) = MEGATHERM; **Macrozoogonid'ium** (*ζῷον*, an animal, + GONIDIUM), in *Ulothrix* the larger kind of zoospore, which germinates independently; *cf.* MICROZOOGONIDIUM; **Macrozo'ospore**, a large zoospore when compared with others of the same species.

**Mac'ula** (Lat.), a spot; **Mac'ulae**; (1) areolated pits of Coniferae; (2) also organs on the aërial stem of *Cyathophorum*, large round white dots in two rows, probably water-storing organs; **maculifor'mis** (*formis*, shape), used by Koerber for apothecia which are shaped like irregular spots; **mac'ular**, **mac'ulate**, **mac'ulose** (*maculosus*, spotted), blotched or spotted; **Macula'tion**, the arrangement of spots on a plant (Crozier).

**madefac'tus** (Lat.), moistened, as plants in an herbarium previous to examination.

**Madu'ra**, the fungus-foot disease supposed to be caused by *Chionyphe Carteri*, Berk.

**mag'moid** (*μάγμα*, dregs, *εἶδος*, like), in Lichens, "like an Alga, consisting of spherical green cellules" (Leighton).

**mal'acoid** (*μαλαχὸς*, soft, *εἶδος*, like), mucilaginous; **Malacoph'ilæ** (*φιλέω*, I love), plants which are fertilized by snails or slugs.

**male**, a plant or flower which bears stamens or their analogues; ~ **Cell**, the smaller of two unequal gametes; ~ **Flow'ers**, staminate flowers; ~ **Or'gans**, those structures which, in fertilization, are concerned, as the stamens, antheridia, etc.; ~ **Prothal'lium**, one which bears antheridia only; ~ **Sys'tem**, all that part of the flower which belongs to the stamen.

**ma'lic** (*malum*, an apple), pertaining to apples, as ~ **Ac'id**, which is said

to be the most frequent of organic acids in cell-sap.

**Malicor'ium** (Lat.), the rind of the pomegranate.

**malig'nant Oedem'a**, disease in animals resembling anthrax, and like that, caused by a bacillus.

**Mal'leolus** (Lat., a small hammer), a layer; a shoot bent into the ground and half-divided at the bend, whence it emits roots.

**mallococ'cus** (*μαλλός*, a lock of wool, *κόκκος*, a berry), downy fruited.

**Malpighia'cei Pi'li**, hairs attached by their middle, frequent in the order Malpighiaceae; **Malpig'hian Cells**, those which compose the outer layer of the seed in Malpighiaceae, with a "luminous line" composed of Lignin.

**Malt'ase** or **Malt'in**, a ferment found in all germinating cereals, and of greater activity than diastase (Dubrunfaut); **Malt'ing**, germinating seeds of barley until the radicle (acrospire) is produced, and then checking the further germination by means of heat; **Maltodex'trin**, a body intermediate in properties between maltose and dextrin; **Malt'ose**, a sugar formed by the action of diastase on starch.

**malva'ceous**, resembling or belonging to the order Malvaceae.

**Mamil'la** (Lat. a nipple or teat) = MAMMILLA.

**Mamelon'** (Fr.), **ov'ular ~**, the papilla which precedes the formation of the nucellus in *Cycas* (Treub).

**mam'miform** (*mamma*, a breast, *forma*, shape), breast-shaped, conical with rounded apex.

**Mammil'la** (Lat.), a nipple or projection; used for granular prominences on pollen-grains; **mam'millar**, *mammilla'ris*, **mam'millate**, *mammilla'tus*, having teat-shaped processes.

**mam'mose** (*mammo'sus*, full-breasted), having breast-like protuberances.

**man'cus** (Lat. maimed), deficient or wanting.

**man'icate**, *manica'tus* (Lat. long-sleeved), applied to pubescence so dense and interwoven that it may be stripped off, "like a sleeve."

**Man'na**, the hardened exudation from various trees, as from *Fraxinus Ornus*, Linn.; **Man'nite**, a sweet substance in the sap of the same tree; **Man'nitose**, sugar from the pith of ash, oak and elder; **Man'nose**, a sugar resulting from the hydrolysis of cellulose.

**Manom'eter** (*μανὸς*, rare, scanty; *μέτρον*, a measure), apparatus to measure the pressure of gas or liquid.

**Man'tle**, used by Grew for ocrea. **Man'tle-Cells**, tapetal cells; **~ Lay'er**, a layer of tapetal cells; **~ Leaf**, Goebel's term for the prostrate, half-enveloping barren frond, as in *Platycerium alcicorne*, Desv., as distinct from the fertile frond.

**Manu'brium** (Lat. a handle), a cell which projects inward from the centre of the shields in the globule of *Chara*.

**man'y-head'ed**, with many distinct buds on the crown of a root.

**mar'bled**, stained with irregular streaks of colour.

**marces'cent**, *marces'cens* (Lat. withering), withering without falling off; **mar'cidus** (Lat.), withered, shrunk.

**Mar'cor** (Lat. decay), welting, flaccidity caused by want of water.

**Margel'la** (dim. of *margo*, a border), the elliptic ring round a stoma formed by the guard-cells.

**Mar'gin**, *Mar'go*, the edge or boundary line of a body; **mar'ginal**, *margina'lis*, placed upon or attached to the edge; **~ Grow'ing-point**, in a flattened member when the marginal cells remain embryonic and capable of growth; **~ Ov'ule**, an ovule borne on the margin of a carpel; **~ Veil**, a membrane enclosing the hymenium in the young stage of Agarics, the *Velum partiale*; **mar'ginate**, *margina'tus*, *margina'rius*, broad-brimmed, furnished with

a margin of distinct character; **mar'gined**, marginate; **marginici'dal** (*caedo*, I cut), dehiscent by the disjunction of the united margins of the carpels, a form of septicidal dehiscence; **Mar'go thallo'des**, the rim of the shield of a Lichen formed by the thallus.

**marine'**, *mari'nus* (Lat., pertaining to the sea), growing within the influence of the sea, or immersed in its waters.

**marit'imus** (Lat., marine), belonging to the sea, or confined to the sea-coast.

**Mark'ings**, used of various forms of thickening on the cell-wall, as annular, reticulated, spiral, etc.

**marmora'tus** (Lat., marbled), having veins of colour, as some marbles.

**Mar'row**, used by Blair for the pith.

**marsu'pial** (*μαρσύπιον*, a pouch), geocalycal or pouch-fruited, used of certain Hepaticae.

**mas**, **mas'culus**, **masculi'nus** (Lat.), male; staminate, or with corresponding structures.

**masked**, personate.

**Mass**, usually written MAST.

**Mas'sa** (Lat., a lump), the mass or substance of a body; ~ **semina'lis**, the flesh of some Fungi (Lindley); ~ **sporoph'ora**; ~ **thecig'era**, the sporangia of some Fungi (Lindley); **Mas'ses**, collections of anything in unusual quantity, as pollen-masses.

**Mas'sula** (Lat., a little lump), (1) the hardened frothy mucilage enclosing a group of microspores in Heterosporous Filicineae; (2) in Phanerogams, a group of cohering pollen-grains produced by one primary mother-cell, as in Orchideae; also styled Pollen-mass.

**Mast**, the fruit of such trees as beech, and other Cupuliferae.

**mast'igopod** (*μάστιξ*, a whip; *πούς*, *ποδός*, a foot), a stage in the development of Myxogastres, the contents of each spore escape as a zoogonidium enclosing a nucleus and contractile vesicle, with a single cilium.

**Mas'tic** (*μαστίχη*, gum), a resinous exudation from *Pistacia Lentiscus*, Linn.

**mas'toid** (*μαστός*, a breast; *εἶδος*, like), nipple-like.

**Math**, an old term for crop, as aftermath = second crop.

**Ma'trix** (Lat. the womb), the body on which a Fungus or Lichen grows, ~ **Pol'linis**, the cell in which pollen-grains are developed.

**Mattul'la** or **Mat'tula** (*matta*, a mat), the fibrous material surrounding the petioles of palms.

**Matura'tion**, *Matura'tio* (Lat.), ripening.

**matures'cent** (*maturescens*, becoming ripe), approaching maturity (Crozier).

**matuti'nal**, *matutina'lis*, **matuti'nus** (Lat.), pertaining to the morning; plants flowering early, as *Ipomoea purpurea*, Roth.

**meal'y**, farinaceous.

**mean'driform** ‡ (*μαίανδρος*, a winding river, *forma*, shape), having a winding direction, as the anther-cells of Cucurbitaceae.

**Mea'tus** (Lat., a passing) **intercel'lularis**, an intercellular passage; ~ **pneumat'icus**, an air-passage.

**Mechanomorph'osis** (*μηχανή*, contrivance, *μόρφωσις*, shaping), a word coined by Sachs to express mechanical changes in structure produced in the larger groups by similar external causes, as leaf-like organs in Algae and Phanerogams.

**Me'conine** (*μήκων*, a poppy), an alkaloid contained in opium; **Meco'nium**, botanically, the juice of *Papaver somniferum*, Linn.

**me'dial**, **me'dian**, *media'nus* (Lat., in the middle), belonging to the middle; **Me'dian Line**, the central line of a bilateral organ, as the mid-rib of a symmetric leaf; ~ **Plane**, when used of a flower, in the plane of bract and axis; ~ **Wall**, in Archegoniates, the wall in a plane at right angles to the basal wall dividing the proëmbryo into lateral halves.

**Medica'gophyll** (*Medicago*, Tourn., + phyll), the characteristic chlorophyll of Lucerne, *Medicago sativa*, Linn.

**medifix'us** (*medius*, middle, *fixus*, fastened), fixed by the middle; **Mediocor'tex** (+ CORTEX), the central layer or layers of the bark.

**medio'cris** (Lat., middling), intermediate.

**mediterra'neus** (Lat., midland), (1) inhabiting spots far from the sea; (2) occurring in the Mediterranean region.

**medival'vis** (*medius*, middle, *valva*, a valve), arising from, or on the middle of the valves.

**Medul'la** (Lat., pith, marrow); (1) the pith; (2) the central looser portion of the flesh in certain Fungi; (3) the "Mattulla" of palms (Stormonth); ~ **Se'minis** ‡ the albumen of seeds; **medul'lary**, *medulla'ris* (Lat., seated in the marrow), relating to the pith, pithy; ~ **Bun'dles**, the more lateral vascular bundles of the leaf-trace in Monocotyledons; ~ **conjunc'tive Tis'sue** = PITH; ~ **Crown**, = ~ SHEATH; ~ **Phlo'ëm Bun'dles**, independent phloëm bundles developed just within the ring of normal vascular bundles; ~ **Rays**, plates of parenchyma or cellular tissue radiating from the pith to the cortex; the "silver-grain" of joiners; ~ **Sheath**, tracheids forming a circle round the pith, the primary xylem bundles projecting into the pith from the cambium-ring; ~ **Spot**, an accumulation of parenchymatous cells in certain woods, as *Alnus* (De Bary); ~ **Sys'tem**, sometimes used for the whole ground tissue, but more properly the pith and medullary rays only; **Medul'lin**, the cellulose from pith of the sun-flower and lilac (Braconnot); **Medulli'na** (Lat.) = PITH; **medullo'sus** (Lat., marrowy), having the texture of pith.

**megaceph'alus** (*μέγας*, large, *κεφαλή*, head), used of large capitula of Compositae; **Megacon'ids** (*κόνις*, ashes), Zukal's term for the large conidia borne in pycnidia of certain Ascomycetes; **Megagam'etes** (*γαμέτης*, a spouse), the larger motile sexual cells of Algae, presumably female.

**Megalogonid'ium** (*μεγάλος*, large + GONIDIUM) = MACROGONIDIUM.

**megarhi'zous** (*μέγας*, large, *ῥίζα*, a root), large-rooted; **Megasporan'ge** [four syll.] (*σπορά*, seed, *ἀγγεῖον*, a vessel), a Sporangium which produces Megaspores; **Meg'aspore**, the larger spores of vascular Cryptogams; the more correct form of MACROSPORE; **Megaspor'ophyll** (*φύλλον*, a leaf), (1) a carpel; (2) a sporophyll which bears megaspores; **Megazo'oids** (*ζῷον*, an animal, *εἶδος*, resemblance), large motile daughter-cells of certain unicellular Algae (Hazen); **Megazoosporan'ge** (*σπορά*, a seed, *ἀγγεῖον*, a vessel), in *Hydrodictyon*, the special sporangium which contains a swarm of megazoospores, the ordinary method of propagation, the protoplasm of a cell giving rise to a large number, each provided with four cilia.

**Megis'totherm** (*μέγιστος*, greatest, *θέρμη*, heat), a plant requiring a very high temperature for growth.

**meiogy'rous** (*μείων*, less, *γυρός*, round), rolled inwards a little.

**mei'on** (*μεῖον*, less), prefixed to an organ, shows it is less than some other organ understood; **Meiophyl'ly** (*φύλλον*, a leaf), diminution in number of the leaves in a whorl, as compared with the preceding whorl; **Meiosporan'ge** (+ SPORANGIUM), Sauvageau's name for the smaller plurilocular sporangia enclosing zoospores of *Ectocarpus virescens*, Thuret; **meioste'monous** (*στήμων*, a filament), with fewer stamens than petals; **Meiotax'y** (*τάξις*, order), the suppression of entire whorls; **Mei'otherm** (*θέρμη*, heat), a plant inhabiting cool temperate regions; all are hardy in England.

**Melampy'rine, Melampy'rite,** a substance occurring in *Melampyrum nemorosum*, Linn., the same as DULCITE.

**Mel'anism** (*μέλας*, black), a disease producing blackness; **melanosperm'ous** (*σπέρμα*, seed), having dark-coloured seeds or spores; **melanochlor'us** (*χλωρός*, pale green), blackish green, atrovirens; **melanophyl'lus** (*φύλλον*, a leaf), having leaves of a dark colour.

**melastoma'ceous**, resembling or pertaining to those plants of which the genus *Melastoma* is the type.

**Melez'itose** (Fr., mélèze, larch), a sugar from the larch.

**Melib'iase** (*mel*, honey), a synonym of RAFFINASE.

**me'linus** (*μήλινος*, pertaining to quinces), like quinces, or quince-coloured.

**Mel'itose** (*mel*, honey), sugar from *Eucalyptus* "Manna," produced in Tasmania; also spelled **Mel'itoze**, a synonym of RAFFINOSE; **Mel'izitase**, an enzyme present in *Sterigmatocystis nigra* Sacc.; **Mel'izitose**, a sugar existing in *Alhagi Maurorum*, Linn.

**Mellaro'se** (Ital.), the name of a variety of the orange in which the carpellary whorl is multiplied, producing an appearance of prolification (Masters).

**mel'leus** (Lat., pertaining to honey), (1) with the taste or smell of honey; (2) honey-coloured.

**Mel'ligo** (Lat., honey-like juice), used for "Honey-dew," the exudation of Aphides.

**mel'linus** (*mel*, *mellis*, honey), the colour of new honey.

**Melittaeph'ilae** (*μέλιττα*, a bee, *φιλέω*, I love), flowers which are adapted for fertilisation by the larger bees; the colour and scent are attractive to man also (H. Mueller).

**Melon'ida,‡ Melonid'ium‡** (*μῆλον*, an apple, *εἶδος*, like), an inferior, many-celled fruit, as an apple; **melo'niform** (*forma*, shape), melon-shaped; irregularly spherical with projecting ribs as in *Melocactus*.

**Mem'ber**, any part of a plant regarded with reference to its form and position.

**membrana'ceous**, *-ceus* (Lat.), **mem'branous**, thin and semi-transparent, like a fine membrane, as the leaves of Mosses; **Mem'brane**, *Membra'na* (Lat.), a delicate pellicle of homogeneous tissue; **Membra'na gongylif'era**, the hymenium of Fungi; **mem'branous Lay'er**; **~ myce'lium**, interwoven hyphae forming a layer; **membranogen'ic** (*γένος*, race), productive of a membrane; **Membra'nula,‡** the indusium of Ferns.

**memnon'ius** (Lat. from *Memnon*), brownish black, nearly as dark as *piceus*.

**Meneblaste'ma** (*μήνη*, moon = a month, *βλάστημα*, a sprout), Minks's term for the soredia of Lichens.

**menisca'tus** (*μηνίσκος*, a crescent), "a cylinder bent into half a circle" (Lindley); **menis'coid**, *meniscoi'deus* (*εἶδος*, like), thin and concavo-convex, like a watch-glass.

**Menisperm'ine**, an alkaloid from the genus *Menispermum*.

**menstrua'lis, men'struus** (Lat.), lasting for a month or so; *cf.* BIMESTRIS, TRIMESTRIS.

**Menta'gra** (Lat. an eruption on the chin) **parasit'ica** = SYCOSIS; **Menta'graphyte** (*φυτόν*, a plant), the Fungus supposed to cause the disease Mentagra or Sycosis.

**Men'tum** (Lat. the chin), an extension of the foot of the column in some Orchids, in the shape of a projection in front of the flower.

**Merench'yma** (*μέρος*, a part, *ἔγχυμα*, an infusion), spherical cellular tissue; **~ Cells**, unpitted cells in the pith of trees, with intercellular spaces, and much elongated radially; *cf.* PALISADE CELLS; **Mer'icarp**, *Mericar'pium* (*καρπός*, fruit), a portion of a fruit which splits away as a perfect fruit; as the two carpels in Umbelliferae.

**meridia'nus** (Lat. belonging to noon), at mid-day or noon; towards the south (in northern latitudes); **merid'ian**, applied by O. Mueller to the plane in Diatoms which contains the pervalvar axis.

**Mer'idisk** (*μέρος*, a part, *δίσκος*, a disc), term proposed by Clos for any process upon the receptacle apart from the floral organs, whether glandular or not (Crozier); **Mer'ism**, Bateson's term for the repetition of parts to form a symmetry or pattern.

**merismat'ic** (*μέρισμα*, a share), dividing into parts or similar portions; ~ **Tis'sue**, formative tissue, *cf.* MERISTEM.

**Mer'ispore** (*μέρος*, a part, *σπορά*, seed), the segment of a sporidesm; **Mer'istele** (*στήλη*, a pillar), a portion of the stele of a monostelic stem received by each leaf; **meris'tic Varia'tion**, see MERISM.

**Mer'istem** (*μεριστός*, divisible), nascent tissue, capable of being transformed into special forms, as cambium, etc.; **Pri'mary** ~, forms the whole tissue of very young organs; **Sec'ondary** ~, occurs in organs along with permanent tissue, usually in thin layers; **meristemat'ic**, pertaining to the Meristem; **meristogenet'ic** (*γενέτης*, a begetter), produced by Meristem, actively dividing cell-tissue; **Mer'ithal**, **Merithal'lus** (*θαλλός*, a young shoot), an internode.

**meroblas'tic** (*μέρος*, a part, *βλαστός*, a bud) **Embryog'eny**, when only a part of the spore is concerned, *cf.* HOLOBLASTIC; **Meroconid'ium**, pl. **Meroconid'ia**, (+ CONIDIUM), conidia which arise from the simultaneous septation of a hypha in Zygomycetes, and mature together, while ACROCONIDIA mature in succession from the apex (A. Fischer); **meros-** as a prefix, and its forms **-merous**, *-merus*, as suffixes, denote parts or numbers, as dimerous, etc.

**mes'arch** (*μέσος*, in the middle, *ἀρχή*, beginning), applied by Solms-Laubach to those bundles in which the protoxylem lies in the interior of the primary strand of the wood, thus partly centripetal and partly centrifugal; **Mesenter'ica** (*εντέρον*, an intestine), "the mycelium of certain Fungals" (Lindley); **Mes'istem**, contracted from **Mesomer'istem**, the thickening ring of Sanio, a ring of tissue producing the bundle system; **Mes'oblast** (*βλαστός*, a bud), the nucleus; **Mesoblaste'sis**, medial growth from Lichen hyphae (Minks); **Mes'ocarp**, *Mesocar'pium* (*καρπός*, fruit), the middle layer of a pericarp; **Mesocauleorhi'za** (*καυλός*, stem, *ῥίζα*, root), Gaudichaud's term for "the line of demarcation between the ascending and descending systems in his 'Phyta,'" (Lindley); **Mes'ochil**, *Mesochil'ium* (*χεῖλος*, lip), the intermediate part of the lip of those Orchids which have it separated into three distinct parts; **Mes'ochite** (*χιτών*, a tunic), the middle layer surrounding the egg in Fucaceae, composed of cellulose and attached at the base (Farmer); **Mesocol'la**, ‡ (*κόλλα*, glue), a supposed intermediate layer of the cuticle between the upper and lower surfaces; **Mesoder'mis** (*δέρμα*, skin), the middle layer of tissue in the theca of a Moss; **Mesogonid'ium** (+ GONIDIUM), a gonidium which is partially enveloped in new tissue; **mesogonim'icus** (*γόνιμος*, productive), having the gonidial layer in the centre (Wallroth); **Mesophlo'ëm** (*φλοιός*, bark), the middle, or green bark; **Mes'ophyll**, *Mesophyl'lum* (*φύλλον*, a leaf), (1) the interior parenchyma of a leaf, the whole interior ground tissue of the blade; (2) the demarcation between leaf and leaf-stalk; **Mes'ophyte** (*φυτόν*, a plant), Warming's term for those plants which are intermediate between Hydrophytes and Xerophytes; avoiding both extremes of moisture and drought; **Mesophy'tum**, (1) a name given by Clarion to the

Collar or junction of stem and root; (2) by Lindley given as the demarcation between the internode and petiole; **mesophyt'ic**, relating to plants which require an average amount of moisture only; **Mesopod'ium** (*πούς, ποδός*, a foot), the intermediate part of a leaf, the petiole or leaf-stalk; **Mes'osperm** (*σπέρμα*, seed), the second membrane or middle coat of a seed, the sarcoderm; **Mes'ospore** (*σπορά*, seed); Dietel's term for an *Uredo*-spore which apparently will only germinate after a resting period; **mesosty'lous** (+ Stylus), in trimorphic plants those which possess flowers having styles of intermediate length; **Mesothe'cium** (*θήκη*, a case), (1) the intermediate layer of cells in the wall of the anther; in ripe anthers it often occurs as the inner layer by disappearance of the endothecium proper; (2) the Thecium of Lichens; **Mes'otherm** (*θέρμη*, heat), a plant of the sub-tropical or warm temperate zones, in Britain needing protection against frost; **mesotri'arch** (+ triarch), when in a triarch stele the two principal xylem bundles are more or less fused (Prantl); **mesoxyl'ic** (*ξύλον*, wood), a synonym of mesarch.

**Mes'tom** or **Mes'tome** (*μεστός*, replete), Schwendener's term for the ducts of a bundle, those parts which do not conduce to its strength; *cf.* Stereome.

**Metar'abin** (*μετά*, with, beyond, sharing with, + Arabin), a substance present in some varieties of gum arabic, possibly identical with the "Pectose" of sugar beet; **Metabio'sis** (*βίος*, life), symbiosis, with one of the organisms preparing the way for the other; not synchronous; **Met'ablast** (*βλάστος*, a bud), the Nucellus.

**metabol'ic** (*μεταβολή*, change), applied to chemical changes in living organisms; ~ **Force**, vital activity; **Metab'olism**, the sum of the chemical changes in a living cell, usually restricted to constructive change; *cf.* Anabolism, Katabolism; **metab'olize**, to change as described.

**Metacel'lulose** (*μετά*, with, + Cellulose), found in Lichens and Fungi; it is the same as Fungine; **Metachlamyd'eae** (*χλαμύς*, a cloak), Macmillan's proposed term for Compositae; adj. **metachlamyd'eous**; **Metacollench'yma** (+ Collenchyma), a result of secondary metamorphosis which has taken place at a late period (C. Mueller); **Metacra'sis** (*κρᾶσις*, a mixture), kinetic metabolism, transmutation of energy; **metad'romous** (*δρόμος*, a course), a form of venation in which in a single Fern-frond the first set of nerves in the segments are given off on the upper, or the lower (basal) side of the midrib (Prantl); **metagam'etal** (+ Gamete) **Rejuvenes'cence**, a cell or mass of cells acting as a gamete or zygote (Hartog); **Metagam'ophyte** (*γάμος*, marriage, *φυτόν*, a plant), Macmillan's proposed name for his highest group of Phanerogams, a synonym of "Siphonogamia"; **Metagen'esis** (*γενέσις*, a beginning), M'Nab's term for true alternation of generations; **Metakine'sis** (*κίνησις*, a moving), the separation of the threads in the metaphasis stage of nuclear division; **Met'amer** (*μέρος*, a part), used by Sachs to denote a Phyton, or one of a number of similar parts of a series.

**Metamorph'osis** (*μεταμόρφωσις*, transformation), in botany the change of one organ into another, as stamens into petals; syn. **Metamor'phy**; adj. **metamor'phosed**, changed.

**Metane'ma** (*μετά*, with, *νῆμα*, a thread), Macmillan's name for the second stage in the germination of Mosses which succeeds the protonema; adj. **metane'mal**; **Metaph'asis** (*φάσις*, a phase), in nuclear division the separation of the daughter chromosomes; **Metaph'ery** (*φορέω*, I carry), the displacement of organs, as when alternate become opposite, etc.;

**Metaphlo'ëm** (+ PHLOËM), Van Tieghem's term for a simultaneous growth of bast-tissue with the METAXYLEM; **Metaphy'ta** (*φυτὸν*, a plant), (1) plants which manifest sexuality or indicate by accessory characters that in their ancestral lines sexually complete progenitors have occurred; (2) plants with tissue differentiation; *cf.* PROTOPHYTE, adj. **metaphy'tic**; **Met'aplasm** (*πλάσμα*, moulded), Hanstein's term for the protoplasm which contains the formative or granular material; **Metaplas'tid**, used to designate the metaphytic organism (Moore); **Met'asperm** (*σπέρμα*, seed), (1) a sporophyte in which the egg-organ is aborted, and no purely vegetative cells are to be found in either male or female plants; (2) a synonym for Angiosperms; (3) applied by Boulger for the large-celled secondary prothallium in *Selaginella*, the secondary endosperm in Gymnosperms, and the endosperm, originally so-called, formed after fertilisation by the division of the secondary nucleus of the embryo-sac in Angiosperms; **metasper'mic**, **metasper'mous**, angiospermous; **Metaspor'ophyte**, Macmillan's expression for a Cryptogam of the highest specialisation, as *Selaginella*.

**Metas'tasis** (*μετάστασις*, a removing), (1) the sum of the changes undergone by the products of assimilation in the cells; metabolism; (2) the shifting of an organ to some usual position (Moquin-Tandon).

**Metax'in** (*μετὰξυ*, between), a proteid, the material of the fibrils of plastids (Schwarz); **Metaxy'lem** (+ XYLEM), the centrifugally formed vascular bundles superposed to the liber bundles (Van Tieghem).

**meteor'ic** (Mod. *μετέωρος*, in mid air), applied to flowers whose expansion depends upon the weather.

**metis'toid** (*μῆτις*, counsel, *εἶδος*, like), composed of differentiated cells, each cell being dependent on the other cells of the organism (Hartog).

**metoe'cious** (*μετὰ*, beyond, *οἶκος*, house), existing on different hosts, heteroecious; **metox'enous** (*ξένος*, a host) is a synonym.

**Metrogonid'ium** (*μήτηρ*, mother, + GONIDIUM) = HETEROCYST.

**Mette'nian Glands**, organs peculiar to Plumbagineae which secrete mucilage and sometimes chalk.

**Me'tuloids** (*metula*, a small pyramid, *εἶδος*, like), modified cystidia, encrusted with lime, which project from the hymenium of *Peniophora*, giving it a velvety appearance.

**Miasm'**, **Mias'ma** (*μίασμα*, defilement), Naegeli's term for those diseases which are due to microbes.

**Micel'la** (L. Lat. from *mica*, a crumb), an aggregation of molecules in the manner of a pleon, but in larger numbers (Nägeli); **micel'lar Ag'gregate**, a combination of Micellae.

**Micran'dre** (*μικρὸς*, small, *ἀνὴρ*, *ἀνδρὸς*, a man) = DWARF-MALE; **micro-aëroph'ilous** (*ἀὴρ*, air, *φιλέω*, I love) Beijerinck's term for anaërobic, needing but little free oxygen; **Microb'asis** (*βάσις*, a base), a variety of the carcerule, as in Labiates; **Mi'crobe**, pl. *Micro'bia* (*βιος*, life), Pasteur's term for such organisms as Schizomycetes, bacteria; adj. **microbio'tic**; **Microcen'trum** (*centrum*, *κέντρον*, a sharp point), applied to the granular inclusions in the astrosphere of leucocytes, probably the equivalent of Centrosome (Farmer); **Micrococ'cus**, pl. **Micrococ'ci** (*κόκκος*, a kernel), a genus of bacteria, sometimes used to express microbiotic organisms; **Microcon'id**, *Microconid'ium* (+CONIDIUM), the smaller conidia, when two sizes are produced; **Mi'crocyst** (*κύστις*, a bag), an amoeboid cell which is surrounded by a membrane, the resting state of swarm-cells of Myxogastres; **Mi'croderm** (*δέρμα*, skin), = MICROBE; **Microdi'odange** (+ DIODE, *ἀγγεῖον*, a vessel), Van Tieghem's term for pollen-sac;

**Microdi'ode**, the same botanist's expression for a pollen-grain; **Mi'croform** (*forma*, shape), used of a heteroecious Fungus with teleutospores only, which germinate only after a resting period; **Microgam'etes** (+ GAMETE), the smaller and male motile cells of Algae; **Mi'crogerm** (*germen*, offshoot) = MICROBE; **Microgonid'ium** (+ GONIDIUM), a small gonidium, as compared with others produced by the same species; **Micromelittoph'ilae** (*μέλιττα*, a bee, *φιλέω*, I love), applied to those flowers whose fertilisation is effected by small bees and similar insects; the attraction is incomprehensible by human sense; **Microm'eter** (*μέτρον*, a measure), a device or apparatus to measure minute dimensions; **Micromil'lemeter**, the thousandth part of a millemeter, and the unit of microscopic measurement, denoted by the sign $\mu$; **Micromyioph'ilae** (*μυία*, a fly; *φιλέω*, I love), flowers which are fertilised by small flies which are often imprisoned; adj. **micromyioph'ilous**; **microphyl'line** (*φύλλον*, a leaf), composed of small leaflets or scales; **Mi'crophyte** (*φυτόν*, a plant), used of bacteria; adj. **microphyt'ic**; **Micropuccin'ia**, with selentospores only (Plowright); **Mi'cropyle** (*πύλη*, a gate), the aperture in the skin of the seed formerly the foramen of the ovule, it marks the position of the radicle; adj. **micropy'lar**; **Microscle'rote** (*σκληρός*, hard), a sclerotium modified by unfavourable vital conditions, after a resting period it develops into a perithecium (Zukal); **Mi'crosome**, *Microso'ma*, pl. *Microso'mata* (*σῶμα*, a body), in the plural applied to small granules embedded in the protoplasm; **Microsporan'gium** (+ SPORANGIUM), a sporangium which produces microspores; **microsporan'giate Flow'er**, male, or staminate flower; **Mi'crospore** (*σπορά*, seed), (1) the smaller sized spore in heterosporous plants, as *Selaginella*; (2) of late years applied to the pollen-grain; adj. **microspor'ic**, **micros'porous**; **Microspor'ophyll** (*φύλλον*, a leaf), a leaf-like organ bearing microsporangia; **microsporophyl'lary Flow'er**, a male or staminate flower; **Mi'crostome** (*στόμα*, a mouth), a small orifice; **Microsty'lospore** (*στῦλος*, a column, *σπορά*, seed), stylospores of a small size, as in *Locularia*; **microsty'lous**, short-styled, as applied to dimorphic flowers; **Microsym'biont** (+ SYMBIONT), the smaller of the two associated organisms; **Mi'crotherm** (*θέρμη*, heat), used for plants c' aracteristic of the arctic alpine zone, in England needing protection from drought and direct sunlight; **Mi'crotome** (*τομή*, a cutting), an instrument for section-cutting for microscopical purposes; **Microzoogloe'a** (*ζῷον*, an animal, *γλοιός*, a sticky substance), a stage of Schizomycetes when they are immersed in a gelatinous envelope; **Microzoogonid'ium** (+ GONIDIUM), a motile form of microgonidium; **Microzo'ospore** (*σπορά*, seed), a motile spore, small in size compared with others of the same species; **Microzo'oid** (*εἶδος*, resemblance), small motile reproductive cells in some unicellular Algae, as *Sphaerella* (Hazen); **Mi'crozyme** (*ζύμη*, yeast), Béchamp's name for microbes and small ferments.

**mid**, intermediate; used by H. C. Watson for ~ **agrar'ian**, and ~ **arctic** zones of vegetation; ~ **Er'ror**, see DEVIATION.

**mid'dle**, central; ~ **Lamel'la**, the membrane primary septum between any two cells; ~ **Lam'ina**, in a lignified cell-wall, the portion between the ~ LAMELLA and inner lamina; ~ **Lobe**, see LOBE, Middle.

**Mid'rib**, the principal nerve in a leaf.

**Mid'summer Growth**, a second start into growth after ceasing; it does not occur in all trees.

**mih'i** (Dat., sing of *ego*, I), as an authority it means the particular form accepted as the true one by the author using it.

**Mil'dew**, a disease in plants caused by the attack of the conidial form of Erysipheae; frequently used in a popular sense for any small parasitic fungus.

**milia'rius** (*milium*, millet), minute glandular spots on the epiderm; Henslow spells it "miliaris"; **Mil'iary Glands** = STOMATA.

**Milk**, an opaque white juice; the latex; ~ **Sac**, laticiferous vessels in some species of *Acer*; ~ **Sap** = LATEX (Crozier); ~ **Ves'sels**, laticiferous vessels.

**mill-sail** shape, molendinaceous.

**mimet'ic** (*μιμητικός*, imitative), used of organs or plants which resemble each other in external appearance, but not in characteristic structure; **Mim'icry**, resemblance to some other species, usually serving as protective.

**min'iate**, *minia'tus* (Lat. coloured with cinnabar), the colour of red lead; more orange and duller than vermillion.

**minu'te**, *minu'tus* (Lat. small), very small, inconspicuous.

**Miophyl'ly** = MEIOPHYLLY (Crozier).

**mioste'monous** = MEIOSTEMONOUS.

**Mischom'any** (*μίσχος*, a pedicel, *μανία*, madness), increase in the number of pedicels, as in *Rhus Cotinus*, Linn., *Muscari comosum*, Mill., etc.

**mis'tus, mix'tus** (Lat.) cross-bred.

**Mit'om** (*μιτόω*, I weave), Flemming's term for the network of threads of protoplasm.

**Mito'sis** (*μίτος*, a thread or web), Flemming's term for nuclear division; Karyokinesis of Schleicher; adj. **mito'sic, mito'tic.**

**Mi'tra** (*μίτρα*, a head-dress), (1) the galea of a corolla; (2) the thick rounded pileus of some Fungi; **mi'triform**, *mitriform'is* (*forma*, shape), mitre-shaped; ~ **Calyp'tra**, one which is entire at the base (Hooker).

**mixed** (*mixtus*) **For'est**, one composed of various kinds, growing intermingled; ~ **Inflores'cence**, one in which partial inflorescence develop differently from the main axis, as centrifugal and centripetal together; ~ **Ves'sels**, those having thickenings of more than one description, as annular and spiral (Crozier); **mixotroph'ic** (*τροφή*. food), half-saprophytic (Pfeffer); **mixtiner'vius** ‡ (Lat.) having veins of various sizes.

**mni'oid**, resembling the Moss genus *Mnium*.

**mo'bile**, *mo'bilis* (Lat.), easily moved, moveable or versatile; **Mobil'ity**, power of movement, *cf.* MOTILITY.

**Mock-plums**, abnormal growths known also as BAG-PLUMS.

**modioliform'is** (*modiolus*, a small measure, nave of a wheel, etc., *forma*, shape), like the nave of a wheel, depressed, with narrow orifice, as the ripe fruit of *Gaultheria*.

**Mol'ecule** (*molecula*, a small mass), an aggregation of atoms, hence the ultimate particle of a chemical compound; *cf.* PLEON, MICELLA; adj. **molec'ular.**

**molendina'ceous**, *-ceus*, *-a'ris* (Lat. pertaining to a mill), furnished with large, wing-like expansions.

**Moline'tum**, a plant association composed of *Molinia caerulea*, Moench (Warming).

**mol'lis** (Lat.), soft, usually meaning pubescent.

**molyb'deus, molyb'dos** (*μόλυβδος*, lead), lead-coloured; sad, neutral grey.

**Mon-** (*μόνος*, one), in Greek compounds = one; **Monadel'phia** (*ἀδελφός*, brother), a Linnean Class in which the anthers are united by their filaments into a single brotherhood; adj. **monadel'phian, monadel'phous**; **monan'der**, Necker's term for **monan'drian, monan'drous** (*ἀνήρ, ἀνδρός*, a man), with one stamen; **Monan'dria**, a Linnean class, with one-stamened flowers; **monan'gic** (*ἀγγεῖον*, a vessel),

Prantl's word for a sporangium when enclosed by a hood-like indusium; **monan'thous** (*ἄνθος*, a flower), one-flowered; **mon'arch** (*ἀρχή*, beginning), applied to an xylem-bundle which consists of one protoxylem-group; ~ **Bun'dle**, one in which there is only one strand; **monari'nus** (*ἄρρην*, male), Necker's expression for monandrous; **Monas'ter** (*ἀστήρ*, a star), in nuclear division the mother-star, the chromosomes forming a ring round the central spindle; **Monax'on** (*ἄξων*, an axle), when the two transverse axes of an organ or organism are equal; **mone'cious** = MONOECIOUS; **Monem'bryony** (*ἔμβρυον*, an embryo), the production of one embryo only; adj. **monembryon'ic**.

**Mon'grel**, a cross or hybrid.

**monil'iform**, *moniliform'is* (*monile*, a necklace, *forma*, shape), necklace-shaped; like a string of beads.

**Mon'ism** (*μόνος*, one), employed by L. H. Bailey for "the doctrine of oneness; the supposition that all phenomena and all forms of life are derived from the unfolding or evolution of one single principle and substance."

**Monob'asis** (*μόνος*, one, *βάσις*, base), when the root is reduced to a small unbranched portion, as though it were only the base of the stem; **Monoblas'tus** (*βλαστός*, a shoot or bud), used of Lichen-spores when possessing a single cell; **Monocaro'tin** ( + CAROTIN) a lipochrome pigment allied to Carotin, the colouring of the root of the carrot; **Mon'ocarp** (*καρπός*, fruit), an annual or other plant that flowers but once (Crozier); **monocarpel'lary**, composed of one carpel only; **monocar'pic, bien'nial-** ~, a biennial plant, **peren'nial-** ~, a plant which lives many years before fruiting and perishing; **monocar'pian**, *monocarpia'nus*, *monocar'picus*, **monocar'pous**, only fruiting once; **monocel'lular** (*cellula*, a little cell), cited by Crozier for UNICELLULAR; **monoceph'alous**, *-lus* (*κεφαλή*, a head), bearing a single head or capitulum; **monochas'ial** (*χάσις*, separation), a cyme with one main axis; **Monoch'asy**, a uniparous cyme, either pure, or resulting from the reduction of cymes (Urban); **Monochlamyd'eae** (*χλαμύς*, a mantle), a large division of Phanerogams which have only one set of floral envelopes; **monochlamyd'eous**, *-deus*, having only one kind of perianth; **monochro'mic** (*χρῶμα*, colour), of one tint, unicolorous; **monocli'nous**, *-mus*, **monoclin'ian** (*κλίνη*, a bed), (1) hermaphrodite, having both stamens and pistils in the same flower; (2) applied to the capitula of Composites which have only hermaphrodite florets; **Monocotyle'don** (*κοτυληδών*, a hollow), a plant having but one cotyledon or seed-lobe; **Monocot'ylae**, was suggested by L. Ward as a shortened term; **monocotyle'donous**, with a single seed-lobe, as grasses and palms; **monocy'clic** (*κύκλος*, a circle), (1) when the members of a floral series are in one whorl, as the calyx, corolla, etc.; (2) annual plants; **monodichlamyd'eous** (*δι*, twice, *χλαμύς*, a mantle), having either one or both sets of floral envelopes; **monody'namous** (*δύναμις*, power), with one stamen much longer than the others; **Monoe'cia** (*οἶκος*, a house), a Linnean class characterised by having flowers with the sexes separate, but on the same plant; **monoe'cious**, *-cius*, the stamens and pistils in separate flowers, but borne on the same individual; ~ **Homog'amy**, fertilization from another inflorescence of the same plant (Delpino); **monoec'iously polyg'amous**, having hermaphrodite and unisexual flowers on the same specimen; **Monoe'cism**, the state of possessing monoecious flowers; **Monoëpigyn'ia** (*ἐπί*, upon, *γυνή*, a woman), a class in Jussieu's system

containing monocotyledons with epigynous stamens; **Mon'ogam** (*γάμος*, marriage), a plant with simple flowers, but united anthers; **Monogam'ia**, a Linnean order in the Composites with united anthers, but flowers free on the same receptacle; **monogam'icus**, Necker's term for monogamous; **monog'enous** (*γένος*, race, offspring), = ENDOGENOUS; **monogenet'ic Reproduc'tion**, asexual reproduction; **monog'enus**, (1) monocotyledonous; (2) monotypic (Crozier, Dict. p. 18); **Mon'ograph** (*γραφω*, I write), a systematic account of a particular genus, order, or group; **Mon'ogyn** (*γυνή*, a woman), a plant having a single pistil in a flower; **Monogyn'ia**, a Linnean order, having a solitary pistil or style, though it may have many carpels; **monogyn'ian**, **monog'ynous**, *-nus*, possessing but one pistil; **monogynae'cial** (*γυναικεῖον*, women's quarters), simple fruits resulting from the pistil of one flower; **Monohypogyn'ia** (*ὑπὸ*, under, *γυνή*, a woman), a class in Jussieu's system containing monocotyledons with hypogenous stamens; **monoi'cous** (*οἶκος*, a house), used by bryologists for MONOECIOUS.

**monolep'idus** (*μόνος*, one, *λεπὶς*, *λεπίδος*, a scale), one-scaled; **monol'obus** (*λοβὸς*, an ear-lobe), used by Spruce for one-lobed; **monoloc'ular**, *monolocula'ris* (*loculus*, a little place), one-celled, unilocular, applied to ovaries, etc.; **monom'erous** (*μέρος*, a part), formed of a single member, as the fruit may be of one carpel; **monomorph'ous** (*μορφὴ*, shape), of one form only, not polymorphic (Bailey); **monopet'alous**, *-lus* (*πέταλον*, a flower-leaf), (1) literally one-petalled; (2) gamopetalous, where the corolla is composed of several petals laterally united; **monophylet'ic** (*φυλὴ*, a tribe), originally descended from one tribe, as opposed to polyphyletic; **monophyl'lous** *-lus* (*φύλλον*, a leaf), (1) one-leaved, as an involucrum of a single piece; (2) used of a leaf-bud where a single leaf is subtended by an investing stipule; (3) gamosepalous or gamopetalous; **Mon'oplast** (*πλαστὸς*, moulded), the organic form-element of protoplasm, which group into polyplasts (Vogt); **Mon'opode**, **Monopod'ium** (*πούς*, *ποδὸς*, a foot), a stem of a single and continuous axis; adj. **monopod'ial**; **monop'terous** (*πτερὸν*, a wing), one-winged; **monopyre'nus** (*πυρὴν*, a kernel), containing a single stone or nutlet; **monosep'alous**, *-lus* (+ SEPALUM), gamosepalous, the segments of the calyx being united; **monosiphon'ic** (*σίφων*, a tube), applied to Algae consisting of a continuous tube, an algal filament of a single row of cells; **Mono'sis**, the isolation of an organ from the rest; **Mon'osperm** (*σπέρμα*, seed), a plant of one seed only; **monosperm'ous**, *-mus*, one-seeded; **monospi'rous** (*σπείρα*, a twisted cord), Spruce's term for that condition of the elater in Hepaticae, which consists of a single spiral; **Monospi'rus**, an elater of this kind; **monosporan'giate** (+ SPORANGIUM), applied to a flower with sporangia borne on separate axis, as the beech and oak; further distinguished as **mac'ro-** or **mi'crosporangiate**, as they bear sporangia of the kind indicated; **Mon'ospore**, a special spore in *Ectocarpus*, by Sauvageau considered to be a GEMMA; **Monosporang'ium**, used by Sauvageau for the organ which produces monospores; **monos'tachous** (*στάχυς*, a spike), arranged in one spike; **monoste'lic** (*στήλη*, a pillar), having a single axial cylinder of tissue, in which the vascular tissue is developed; **Monoste'ly**, the state of having a single stele; adj. **monoste'lous**; **monos'tichous**, *chus* (*στίχος*, a row), in a single vertical row; **monostromat'ic** (*στρῶμα*, bed-covering), ap-

plied to the leaves of Mosses and the thallus of Algae when composed of a single layer of cells; **monosty'lous**, *-lus* (+STYLUS) having a single style.

**Mono'sy** (*μόνωσις*, deserted), Morren's term for the abnormal isolation of parts due to (*a*) ADESMY or (*b*) DIALYSIS.

**monosymmet'rical** (*μόνος*, one, *σύμμετρος*, proportionate), used of a flower which can be bisected in one plane only, zygomorphic; **monothalam'ic, monothal'amous** (*θάλαμος*, a bed-chamber), (1) applied to apothecia consisting of a single chamber; (2) when galls consist of only one interior chamber; **monothal'mic**, derived from a single flower, as most fruits (Crozier); **monothe'cal** (*θήκη*, a case), having a single loculus or cell; **monot'ocous**, *-cus* (*τόκος*, child-birth), fruiting once only, as annuals and biennials, monocarpic; **monotrop'ic** (*τροπή*, a turning), applied to bees which visit only one species of flower; **monotyp'ic** (*τύπος*, a type), having only one exponent, as a genus with but one species; **Monox'eny** (*ξένος*, a host), used of a parasite on one host only, autoecious.

**Mon'ster**, *Monstrum* (Lat., an unnatural production), an abnormality; **Monstros'ity**, *Monstro'sitas*, some conformation deviating from the usual and natural structure; adj. **mons'trous.**

**mon'tane**, *monta'nus* (Lat.), pertaining to mountains, as a plant which grows on them.

**Mor'ia** ‡ (*μόρος*, a share), parts of a flower in general, as *pentamorius*, all parts in fives.

**Mor'in** (*Morus*, mulberry), a principle derived from the yellow heartwood of fustic, *Maclura aurantiaca*, Nutt.; the name is derived from *Morus*, to which genus the plant was formerly referred; **Morozy'mase** (*ζύμη*, leaven), an assumed enzyme in the mulberry, now believed to be a mixture of diastase and zymase.

**Morph'ia, Morph'ine** (*Morpheus*, the god of sleep), the best known of all the alkaloids contained in the opium poppy.

**mor'phus** (*μορφή*, shape), in Greek compounds = appearance, as *rhizomorphus*, having the appearance of a root; **Morphogen'esis** (*γένεσις*, beginning), the production of morphological characters; **morpholog'ical**, relating to Morphology; **~ Spe'cies**, Parmentier's term for such specific forms as occur in *Rosa*, which are assumed to have departed from their ancestral form in consequence of varied environment; **Morphol'ogy** (*λόγος*, discourse), the study of form and its development.

**Morpho'sis** (*μόρφωσις*, a shaping), the manner of development; the order in which organs form from their earliest to their final condition.

**mos'chate**, *moscha'tus* (*moschus*, musk), musky.

**Moth'er**, used in the sense of "parent"; **~ Cells**, those which divide to form other cells; **~ Plant**, (1) the parent plant, from which vegetative portions have been derived; (2) the female or seed-bearing parent of a hybrid; **~ Skein**, a continuous ribbon-like figure of chromatin in the early stages of nuclear division, further divided into **close ~**, **looped ~**, and **loose ~**; **~ Star** = MONASTER, a stage of nuclear division.

**Moth'er-of-Vin'egar**, the active agent in acetous fermentation, *Saccharomyces Mycoderma*, Reess.

**mo'tile** (*motus*, a moving), moveable; **~ Re'gion**, (1) in growing members the region of elongation; (2) in mature members a distinct organ, such as the pulvinus in *Mimosa pudica*, Linn.

**Motil'ity** (Fr. motilité), the power of movement; **~ of Pro'toplasm**, a suggested emendation of "contractility" of protoplasm.

**Mo'tor** (Lat., a mover) **Zone**, another term for MOTILE REGION.

**Mould**, applied to microscopic saprophytic fungi, such as *Mucor* and its allies.

**Move'able**, the same as *motilis*, (1) used of a versatile anther whose attachment is slight, therefore apt to be moved by wind or slight shock; (2) with colours, "shot" or changeable (Henslow); (3) the annulus of an Agaric when it detaches itself from the stipes and remains free.

**Move'ment**, motion, continuous or transient; ~ of **Varia'tion**, see ALLASOTONIC.

**Mox'a** (native name), the woolly leaves of *Artemisia Moxa*, DC.

**Mu'cedin** (*mucedus*, mouldy), a tough viscous body associated with gluten in vegetable gelatin (Goodale); **muce'dinous**, musty, mouldy.

**mu'cic** (*mucus*, nasal secretion), relating to gum; **Mu'cilage** (Fr.), vegetable gelatine belonging to the amylose group of carbohydrates; ~ **Canal'**; ~ **Cav'ity**, space caused by the breaking down of the cell-wall of neighbouring cells; ~ **Slit**, an opening on the under surface of the thallus in Anthoceroteae, like a stoma without guard-cells, leading into a cavity filled with gum; **mucilag'inous**, slimy, composed of mucilage; **Mu'cine**, a constituent of wheat-gluten which is soluble in water; **Muco-cel'lulose** (+ CELLULOSE), alluded to under CELLULOSES.

**Mu'corin**, an albuminoid substance occurring in species of *Mucor* (De Bary); **mucorin'eous**, resembling the Mucorineae.

**mu'cous**, *muco'sus* (Lat.), slimy, *cf.* MUCUS.

**Mu'cro** (Lat. a sharp point), a sharp terminal point; **Mucro'na** ‡ = MUCRO (Lindley); **mu'cronate**, *mucrona'tus*, possessing a short and straight point, as some leaves; **Mucrona'tion** = MUCRO; **mucronula'tus** (Lat.), dim. of mucronate.

**Mu'cus** (Lat. nasal secretion), gum-like matter soluble in water; **mu'cous**, mucilaginous.

**Mu'darin**, a substance occurring in the bark of the "mudar," *Calotropis gigantea*, Dryand., and *C. procera*, Dryand.

**Mueller's Corpus'cles**, ovoid or pear-shaped bodies in *Cecropia adenopus*, Mart., which form a velvety coating on the under side of the base of the petiole; they are utilised as food by ants.

**Mule**, in botany, means cross-bred, a hybrid.

**multang'ular**, *multangular'is*, *mulang'ulus* (*multus*, many, *angulus*, an angle), many-angled; **multicap'sular** (*capsula*, a small box), having many capsules; **multicil'iate** (*cilium*, an eyelash), with many cilia; **mul'ticeps**, **multicip'ital** (*caput*, a head), with many heads; it refers to the crown of a single root), **multicos'tate** (*costa*, a rib), many-ribbed; the ribs running from the base of a leaf towards its apex; **multiden'tate** (*dentatus*, toothed), with many teeth; **multidigita'to-pinna'tus**, having many secondary petioles with digitate-pinnate arrangement (Henslow).

**multifar'ious**, *multifar'ius* (Lat. manifold), **multifa'riam** (Lat. many-ranked), many-ranked, as leaves in vertical ranks.

**multif'erous**, *-rus* (*multifer*, bearing much), often bearing, fruitful.

**mul'tifid**, *multif'idus* (Lat.), cleft into many lobes or segments.

**multiflor'ous**, *-rus* (*multus*, many, *flos*, *floris*, a flower), many-flowered; **multifolia'tus** (*folium*, a leaf), many-leaved; **multiju'gate**, *multijuga'tus*, **multiju'gus** (*jugum*, a yoke), having many pairs or jugae; **multilat'eral** (*latus*, a side), many-sided, having several flattened surfaces; **multiloc'ular**, *multilocula'ris* (*loculus*, a little place), many-celled, as an ovary; ~ **Spore** = SPORIDESM; **Multilocula'res**, compound spores; **multinu'cleate** (+ NUCLEUS), having more than one nucleus to a cell; **multip'arous** (*pario*, I bring forth),

many-bearing, applied to a cyme which has many axes; **multipar'tite**, *multiparti'tus* (*partitus*, divided), many times divided, much cut.

**mul'tiplex** (Lat. with many folds), where many of the same parts occur together; **mul'tiple Corol'la**, one that has more than one whorl of petals; ~ **Fruits**, the fruit of a flower-cluster when confluent into one mass; ~ **Pri'mary Root**, a root with several main divisions from the crown, as in *Dahlia* (Crozier); **multipli'cate** (*plica*, a fold), folded often or repeatedly; ~ **Flow'er**, a double flower; **Multiplica'tion**, *multiplica'tus* (Lat., increasing), augmentation, pleiotaxy, pleiophylly; adj. **multiplica'tus**; **multipo'lar** (*polus*, a pole), with more than two poles; ~ **Spin'dle**, Guignard's term for an achromatic spindle when extending in a star-shape between several nuclei; **Multipolar'ity**, the state in question; **multira'diate**, *multiradia'tus* (*radius*, a ray), with many rays.

**multira'mose** (*multus*, many, *ramus*, a branch), much branched; **multisep'tate**, *multisepta'tus* (*septum*, a hedge), with many partitions; **multise'rial**, *multiseria'lis*, **multise'riate**, *multiseria'lis* (*series*, a row), in several series; **multisil'iquous** (+SILIQUA), having many pods or seed-vessels.

**Mummifica'tion** of fruits, used by Tubeuf to express the fungal resting body or sclerotium.

**mu'niens** (Lat.) fortifying; **munien'tia Fo'lia**, protecting leaves which overhang or otherwise guard parts which need protection.

**mu'ral**, *mura'lis* (Lat., pertaining to a wall), growing on walls; **mura'rius** (Lat.) means the same.

**mu'ricate**, *murica'tus* (Lat., like *murex*), rough, with short and hard tubercular excrescences; **muric'ulate**, *muricula'tus*, diminutive of the preceding.

**mu'riform**, *muriform'is* (*murus*, a wall, *forma*, shape), (1) flattened cellular tissue, with cells resembling bricks in a wall; (2) Koerber applies the term to certain Lichen-spores.

**muri'nus** (Lat., of mice), mouse-coloured.

**Muscardine'** (Fr.), a silkworm disease caused by *Botrytis Bassiana*, Bals.

**muscar'iform**, *muscariform'is* (*muscarium*, a fly-flap, *forma*, shape), (1) fly-brush shaped; (2) like the genus *Muscari* as to habit or inflorescence; **Mus'carine**, a poisonous alkaloid from *Amanita muscaria*, P. Karst.; **Musca'rium** (Lat.), a loose and irregular corymb.

**Mus'ci**, sing. **Mus'cus** (Lat.), Mosses; **mus'ciform**, *musciform'is* (*forma*, shape), moss-like in appearance; **muscic'olous** (*colo*, I inhabit), grow-on Mosses; **mus'coid** (εἶδος, like), resembling or belonging to Moss; **Muscol'ogy** (λόγος, discourse), a hybrid term for BRYOLOGY; an account of Mosses.

**mush'room-head'ed**, a cylindric body topped by a convex head of larger diameter; fungiform.

**muta'bilis** (Lat.), changeable, either in form or colour.

**mu'ticous**, *mu'ticus* (Lat. curtailed, docked), pointless, blunt, awnless.

**mu'tilus** (Lat. maimed), applied to a flower nearly or wholly wanting the petals.

**Mu'tualism** (mutual+ism), the same as Commensalism; that is, an association of two organisms which is beneficial to both; also termed **Mu'tual Par'asitism.**

**Mycelconid'ium** (+CONIDIUM) (μύκης, a mushroom), A. Fischer's term for STYLOSPORE; **Mycele'** = MYCE'LIUM; **myce'loid** (εἶδος, like), resembling a mycelium; **myce'lial**, relating to a mycelium; ~ **Lay'er** = MEMBRANOUS MYCELIUM; ~ **Strand**, fibrous mycelium; **Myce'lium**, the vegetative portion of the thallus of Fungi, composed of hyphae; **filamen'tous** ~, the thread-like loose felting of hyphae; **mem'branous** ~

the layer formed by the interweaving of the hyphae; **Myce'litha** (λίθος, a stone), an old term for SCLEROTIUM; **mycetogenet'ic** (γενέτης, a parent), producing Fungi; ~ **Metamorph'osis**, deformation of parts by Fungi; **mycetog'enous** (γένος, race, offspring), producing Fungi; ~ **Chloran'thy**, the development of green in organs normally of some other colour, due to a fungous parasite; ~ **Chlor'isis**, where the chlorophyll is bleached by the action of hyphae of some Fungus (Tubeuf); **my'cetoid**, *mycetoi'deus* (εἶδος, like), fungoid; with the appearance of Fungi; **Mycetol'ogy**, *Mycetolo'gia* (λόγος, discourse) = MYCOLOGY; **Myce'tozoa** (ζῷον, an animal), De Bary's term for MYXOGASTRES; adj. **mycetozo'an**; **My'cina**, in Lichens, a globular stipitate apothecium; **Mycocecid'ium** (κηκίς, κηκίδος, a gall-nut), a gall produced by a Fungus; **Mycodoma'tia** (δωμάτιον, a little house), fungus-chambers, formations of peculiar character found on the roots of plants, regarded by Frank as possessed of the power of attracting Fungi and digesting them; **Mycol'ogist** (λόγος, discourse), one skilled in the knowledge of Fungi; **Mycol'ogy**, the science of Fungi; **Mycomy'cophytes** (φυτόν, a plant), Marchand's term to include Fungi and certain Lichens; **Mycophy'tophytes**, the same writer's name for the remaining Lichens; **My'coplasm** (πλάσμα, moulded), Frank's term for bacteroids, as the Rhizobia on leguminiferous roots; **Mycoplas'ma**, Eriksson's term for a latent symbiotic form of *Puccinia* which may exist in the seed and develop into a mycelium when the host has grown into a plant; **Mycopro'tein** ( + PROTEIN), a gelatinous albuminoid resembling protoplasm, of which the putrefactive bacteria are composed; **Mycorhi'zome** ( + RHIZOME), mycorrhiza-like structure in *Corallorhiza* and *Epipogum* roots; **Mycorrhi'za** (ῥίζα, a root), symbiotic Fungi on the roots of plants, prothallia, etc.; they may be **ectotrop'ic**, ~ entirely outside, or **endotrop'ic**, ~ entirely within the cells; **My'cose**, **My'cosin**, the special nitrogenous substance of the cell-wall in Fungi corresponding to the animal substance chitin (Gilson); **Myco'sis**, a disease in animal tissue caused by species of *Eurotium*; **My'crocyst** = MICROCYST; **Mycropro'tein** = MYCOPROTEIN; **My'cropyle** = MICROPYLE; **My'crozyme** = MICROZYME.

**Myioph'ilae** (μυῖα, a fly, φιλέω, I love), plants which are fertilised by dintera; their flowers are dull in colour and their odours are disagreeable to man.

**mykoklep'tic** (μύκης, a mushroom, κλεπτικός, thievish), applied to the hairs on the rhizome of *Corallorhiza innata*, R. Br., "which seize the mycelium."

**myoch'rous** (μῦς, a mouse, χροῦς, of the skin), mouse-coloured.

**Myrmecodoma'tia** (μύρμηξ, an ant, δωμάτιον, a little house), shelters formed by plants in which ants live; **myrmecoph'ilous** (φιλέω, I love), plants which are inhabited by ants and offer specialised shelters or food for them; **Myrmecoph'ilism**, the state described; further particularised by Warburg, as—**myrmecod'omous** (δόμος, a house), affording shelter only; **myrmecotroph'ic** (τροφή, food), furnishing food; **myrmecox'enous** (ξένος, a host), supplying both food and shelter; **Myrme'cophytes** (φυτόν, a plant), ant-plants; **Myrmecosymbio'sis** ( + SYMBIOSIS), the mutual relations between the ants and their host-plants; adj. **myrmecosymbio'tic**.

**My'rosin** (μύρον, sweet juice), a glucoside occurring in the seed of *Brassica sinapoides*, Roth, and other Crucifers.

**Myrrh**, an aromatic gum-resin yielded by *Commiphora Myrrha*, Engl.

**myr'tiform**, *myrtiform'is* (*myrtus*, the myrtle, *forma*, shape), resembling the myrtle; **myrtoi'deus** (*εἶδος*, like) is a synonym.

**myu'rus** (*μῦς*, a mouse, *οὐρά*, a tail), long and tapering like a mouse's tail.

**Myxamoe'bae** or **Myxoamoe'bae**, pl. (*μύξα*, mucus, *ἀμοιβή*, interchange), the swarm-spores of Myxogastres; **Myxogas'tres** (*γαστήρ*, belly), Fries's term for the group "Slime Fungi," otherwise known as **Myxomyce'tes** and MYCETOZOA; **Myx'on**, a constituent of wheat-gluten precipitated by alcohol; **myx'opod** (*πούς*, *ποδός*, a foot), the amoeboid stage in contrast to the mastigopod; **Myx'ospore** (*σπορά*, a seed), a spore formed in the sporangia of Myxogastres; adj. **myxos'porous**.

**Nährlös'ung** (Germ.), a nutrient solution for laboratory cultures; by mycologists usually restricted to a solution of horse-dung.

**Nail**, as a measure, about half an inch in length, the average length of a finger nail; unguicularis.

**na'ked**, wanting its usual covering, as without pubescence, or flowers destitute of perianth, or buds without scales; ~ **seed'ed**, (1) gymnospermous; (2) formerly used of Labiates, from a false idea of the fruit.

**nanan'drous** (*νᾶνος*, a dwarf, *ἀνήρ*, *ανδρός*, a man), used of certain Algae which produce DWARF-MALES; **Na'nism**, Chodat's term for becoming dwarf; **na'nus** (Lat.), dwarf, *cf.* PUMILUS.

**napa'ceus** (*napus*, a turnip, + *aceus*); **na'piform** (*forma*, shape), turnip-shaped or rooted.

**nap'py**, tomentose.

**Nar'ceine** (*νάρκη*, numbness), an opium alkaloid forming silky, inodorous, bitter crystals.

**Nar'cotine** (*ναρκωτικός*, making numb), also an opium alkaloid, but of very little narcotic power.

**Nar'dine**, pertaining to Nard, *Nardostachys Jatamansi*, DC.

**nas'cent** (*nascor*, to be born), in the act of being formed; ~ **Tis'sue** = MERISTEM.

**na'tant**, *na'tans* (Lat., swimming), floating under water, that is, wholly immersed.

**na'tive**, used by H. C. Watson for undoubtedly indigenous.

**nat'ural**, produced or effected by nature; ~ **Graft**, when branches are united by "approach" naturally; ~ **Sys'tem**, an arrangement according to the affinity of the plants, and the sum of their characters, opposed to any artificial system, based on one set of characters; **Naturaliza'tion**, the act of becoming naturalized; **naturali'zed**, of foreign origin, but established and reproducing itself as though a native.

**Nau'cum**, pl. **Nau'ca** (Lat., a trifle), (1) the fleshy part of a drupe (Lindley); (2) seeds with a very large hilum (Henslow); **Nau'cus**, certain cruciferous fruits which have no valves.

**naut'iform** (*nauticus*, pertaining to ships or sailors, *forma*, shape), = navicular (Crozier).

**nave-shaped**, round and depressed, with a small opening, modioliform.

**Navic'ulae** (pl. *Navicula*, a boat), free frustules of Diatoms like those of the genus *Navicula*; **navic'ular**, *navicula'ris*, boat-shaped, cymbiform; **navic'uloid** (*εἶδος*, like), like the genus *Navicula*.

**neb'ulose**, *nebulo'sus* (Lat. vaporous), (1) cloudy, misty, applied to such finely divided inflorescences as *Eragrostis*; (2) used by Bischoff as meaning smoke-coloured (=*fumeus*).

**Necessa'ria** (*necessarius*, unavoidable), Linnaeus's term for a division of his Syngenesia (=Compositae) in which the ray florets are female and the disk florets male.

**Neck** (1), the collar or junction of stem and root; (2) the point where the limb separates from the sheath of certain leaves; (3) the contracted part of the corolla or calyx tube;

(4) the elongated portion of the embryo sac or archegonium; ~ **Cells** in the archegonium of Bryophytes, the drawn-out portion, as distinct from the venter.

**neck'lace-shaped**, moniliform.

**necrocoleopteroph'ilous** (*νεκρὸς*, dead, + Coleopteron; *φιλέω*, I love), when fertilised by carrion beetles; **necrog'enous**, *-us* (*γένος*, offspring), applied to certain fungoid parasites which hasten the decay of the plants on which they live; **necroph'agous** (*φάγω*, I eat), applied to saprophytes; **Nec'roplasm** (*πλάσμα*, moulded), the analogue of protoplasm in a dead seed; **Nec'roplast**, a protoplast whose organisation has suffered irreparable injury and is dead; **Necro'sis**, (1) canker in plants; (2) used by Escombe as meaning the death of an organism.

**Nec'tar** (*νέκταρ*, the drink of the gods), a sweet fluid extruded from various parts of the plant; in the flower it is called honey; ~ **Glands**, the secreting organs which produce the nectar; ~ **Guides**, lines of colour leading to the nectary; ~ **Marks** = ~ GUIDES (Crozier); ~ **Spots** = ~ GUIDES; **Necta'rium**, or **Nec'tary**, the organ in which nectar is secreted, formerly applied to any anomalous part of a flower, as its spurred petals; **nectarif'erous** *-us* (*fero*, I bear), nectar-bearing; **Nectari'nus**, = NECTARY; **Nectarily'ma** (*εἰλύω*, I wrap round), any appendages to a nectary, as the long hairs in *Menyanthes*; **Nectarostig'ma** (*στίγμα*, a spot), some mark or depression indicating the presence of a nectariferous gland; **Nectarothe'ca** (*θήκη*, a case), the portion of a flower which immediately surrounds a nectariferous pore.

**nee'dle-shaped**, acerose, acicular.

**neg'ative** (*negativus*, that denies), implying denial or absence of some quality or substance; ~ **Geot'ropism**, apogeotropism, the growing in a contrary direction to gravitation; ~ **Heliot'ropism**, apheliotropism, shunning the light; ~ **Pres'sure**, when gases in plants are at a lower tension than air, in consequence of the withdrawal of water.

**Ne'ma** (*νῆμα*, a thread), a filament; **Ne'meae**, "Cryptogams whose sporules elongate into a thread-like form in germination" (Henslow); *cf.* NEMOBLASTUS; **Ne'mathece**, **Nemathe'cium** (*θήκη*, a case), a wart-like elevation of the surface in some Algae containing antheridia and paraphyses or cystocarps.

**Ne'matodes** (*νηματώδης*, thread-like), Confervae.

**Ne'matogone** (*νῆμα*, a thread, *γονὴ*, off-spring); Correns's term for an asexually produced gemma on the protonema of Mosses; **ne'meous**, thread-like, filamentous (Crozier); **Nematomy'ces** (*μύκης*, a mushroom), a synonym of Hyphomycetous Fungi; **Nemoblas'tus** (*βλαστὸς*, a bud), used by Willdenow to include Mosses and Ferns.

**nemora'lis** (Lat., sylvan), inhabiting woods and groves; **nem'orose**, *nemoro'sus* (Lat., full of woods), used as if a synonym of *nemoralis*.

**neogae'an**, *neogae'us* (*νέος*, new, *γῆ*, earth), New World, that is, American or West Indian; *cf.* AMPHIGAEAN, GERONTOGAEAN; **Ne'oplast** (*πλαστὸς*, moulded), a new individual arising from one or more previously existing protoplasts, as the fertilised egg-cell (Hanstein).

**neph'roid**, *nephroi'deus* (*νεφρὸς*, the kidneys, *εἶδος*, like), reniform, kidney-shaped; **Nephros'ta**, Necker's term for the sporangia of *Lycopodium*.

**Ne'reids**, a mythologic name used by Warming to designate water-loving plants which grow on rocks and stones.

**neri'tic** (*νηρίτης*, son of Nereus), applied to plankton which is coastal.

**nerva'lis** (Lat., pertaining to the nerves), (1) synonym of loculicidal, the dehiscence being along the midrib of the carpels; (2) relating

to the midrib of a leaf, as a prolongation of it—as a tendril.

**Nerva'tion**, *Nerva'tio* (*nervus*, a nerve), venation, the manner in which the foliar nerves or veins are arranged; **ner'vate**, *nerva'tus* (Lat.), nerved or veined; **Nerve**, *Ner'vus*, in botany, a simple or unbranched vein or slender rib; **nerved**, *ner'viger* (*gero*, I bear), having nerves, in a botanic sense; **ner'veless**, without apparent nerves; **Nervimotil'ity** (+ MOTILITY), used by Dutrochet to denote the stimulating effect of the substratum on a growing organ; **ner'vose**, *nervo'sus* (Lat., sinewy), full of nerves, or prominently nerved; **ner'vulose**, *nervulo'sus*, diminutive of NERVOUS; **Ner'vures**, the principal veins of a leaf.

**Nest-ep'iphyte** (+ EPIPHYTE), an epiphyte which accumulates humus around itself for its growth.

**nest'ling**, nidulant (Crozier).

**net'ted**, reticulated, net-veined with any system of irregularly anastomosing veins.

**Neuramphipet'alae** (*νεύρον*, a nerve or sinew; *ἀμφὶ*, around; *πέταλον*, a flower-leaf), Cassini's name for the Compositae; **Neura'tion** (+ ation) = NERVATION (Crozier); **neur'ose**, *neuro'sus* = NERVOSE.

**neu'ter** (Lat., neither of two), sexless, as a flower which has neither stamens or pistils; ~ **Flow'ers**, functionally asexual flowers; **neu'tral**, pertaining to neither sex; ~ **Zone**, in Characeae, that line or place where rotating streams of protoplasm flow beside each other in opposite directions, the "indifferent line" shown by the absence of chlorophyll granules; **neutriflor'us** (*flos*, *floris*, a flower), used of the ray-florets of Compositae when neuter.

**new**, the first publication of a genus, species, variety or form.

**Newto'nian Curve**, called also the binomial or Galtonian curve, a graphic representation of variations plotted geometrically in two dimensions; **half-Galtonian Curve**, a similar scheme, from the maximum to minimum, or *vice versa*.

**nicked**, emarginate or notched.

**nicotia'nus**, tobacco-coloured, from the genus *Nicotiana*; it usually means a full brown; **Nic'otin**, an alkaloid found in tobacco-leaves.

**nido'sus** = **nidoro'sus** (Lat., reeking), having a foul smell, as of burnt meat, or rotten eggs.

**nid'ulant**, *ni'dulans* (Lat., nesting), (1) partially encased or lying free in a cavity, as the gemmae of *Marchantia*; (2) embedded in pulp, as the seeds in a berry; **nidula'tus** (Lat.), nested, nestling; **Nidular'ium**, "the mycelium of certain Fungals" (Lindley).

**Ni'dus** (Lat., a nest), a favourable place for a seed or spore to germinate.

**Niederblät'ter** (Germ.) = CATAPHYLLA.

**ni'ger** (Lat.), black; **Nigre'do** (Lat.), blackness.

**Night-posit'ion**, the position assumed by leaves during darkness, the edges being usually turned towards the zenith.

**nigres'cent**, *nigres'cens* (Lat.), turning black; **ni'gricant**, *ni'gricans* (Lat.), becoming black; this and the last are used for tints which turn black with age.

**ni'gritus** (Lat.), blackened, clothed in black.

**Nip'ple**, = PAPILLA.

**niteli'nus** (Lat., pertaining to a dormouse), dormouse-coloured.

**nit'id** (Crozier) = **nit'idous**, *nit'idus* (Lat., shining), smooth and clear, lustrous.

**Nitrifica'tion** (*nitrum*, nitre, + fication), the action of a nitric ferment resulting in the production of nitrates and nitrites; **Nitrobacte'ria** (+ BACTERIA), bacteria which produce nitrification by their action; **Nitrocel'lulose** (+ CELLULOSE), see CELLULOSE.

**niva'lis** (Lat., snowy); (1) growing

in or near the snow; (2) snow-white, more correctly NIVEOUS.

**niv'eous**, *niv'eus* (Lat., snowy), snow-white; pure and lustrous.

**no'bis** (dative pl. of *ego*, I), used as an authority in defining species, etc.

**Nocona'mum** (deriv.?) Necker's term for the sporangium of *Selaginella* (?)

**noctur'nal** (*nocturnalis*, by night), occurring at night, or lasting one night only.

**no'dal** (*nodus*, a knot), relating to a NODE; ~ **Cell**, a cell at the base of the oogonium in *Chara* interposed between the egg-cell and the stalk-cell, with the "Wendungszelle," ~ **Di'aphragm**, any septum which extends across the hollow of the stem at a node.

**nod'ding**, hanging down, nutant.

**Node**, *No'dus* (Lat., a knot), that part of a stem which normally has a leaf or a whorl of leaves; the "knot" in a grass-stem; Lindley gives the following modifications: **closed** ~; **com'pound** ~; **di'vided** ~; **entire'** ~; **o'pen** ~; **sin'gle** ~; see his Glossary (1849), p. lxii.; **nodif'erous** (*fero*, I bear), bearing nodes; **no'dose**, *nodo'sus* (Lat. knotty), knotty or knobby, chiefly used of roots; **Nodo'sity**, *Nodo'sitas* (Lat., knottiness), a woody swelling; **Nod'ule**, *No'dulus* (Lat., a little knot), a small knot or rounded body; ~ of Diatoms = STAUROS; **no'dulose**, *nodulo'sus*, the diminutive of NODOSE.

**No'menclature** (*nomenclatura*, a list of names), the names of things in any science; in botany frequently restricted to the correct usage of scientific names in taxonomy.

**Nomolo'gia** (*νόμος*, custom, *λόγος*, discourse), relating to the laws which govern the variations of organs; **nomosper'mous** (*σπέρμα*, seed), used by Radlkofer to denote the seed normally occurring in the order, tribe, or genus.

**no'nus** (Lat.), ninth.

**nor'mal**, *norma'lis* (Lat.), according to square, according to rule, usual as to structure.

**Nosol'ogy** (*νόσος*, disease, *λόγος*, a discourse), see VEGETABLE NOSOLOGY.

**Nos'toc-lay'er**, in Lichens when the Algal layer consists of *Nostoc* or allied forms (De Bary).

**notate'**, *nota'tus* (Lat. marked), marked with spots or lines.

**noteroph'ilous** (*νοτερός*, moist, *φιλέω*, I love), applied to plants which are intermediate between hydrophytes and xerophytes; by Warming termed mesophytes.

**notched**, emarginate, nicked.

**noth'us** (Lat.), false or bastard, usually applied to the false root of a parasite.

**nototri'bal** (*νῶτος*, the back, *τρίβω*, I beat), pertaining to those flowers described by Delpino as **no'totribe**, whose stamens and styles turn so as to strike their visitors on the back; **notorrhi'zal** (*ῥίζα*, a root), used for incumbent; the radicle being on the back of the cotyledons in certain Cruciferae.

**no'vem** (Lat.) nine; ~ **digita'tus**, nine-fingered; ~ **lo'bus**, nine-lobed; ~ **ner'vius**, nine-nerved.

**Nucamen'tum** (Lat., a fir-cone or catkin), an amentum or catkin; **nucamenta'ceous**, *-ceus*, (1) having the hardness of a nut; (2) synonym for indehiscent, monospermal fruit.

**Nucel'la**, = **Nucel'lus** (Lat., a small kernel), (1) the nucleus of an ovule; (2) the body of the ovule or macrosporangium containing the embryo sac or macrospore; **Nucel'lum**, Germain's form of NUCELLUS.

**nucif'erous** (*nux*, a nut, *fero*, I bear), bearing or producing nuts; **nu'ciform** (*forma*, shape), nut-like in shape.

**nu'clear** (*nucleus*, a kernel), pertaining to a nucleus; ~ **Bar'rel**, a stage immediately preceding the nuclear spindle; ~ **Disc**, the mother-star stage; ~ **Divis'ion**, either direct by fragmentation, or indirect by karyokinesis, the entire history of the division of the cell-nucleus; ~

**Fi'brils**, chromosomes, *cf.* SPINDLE-FIBRES; ~ **Fil'ament**, the chromatin or chromatic filament; ~ **Plate**, see MOTHER-STAR; ~ **Reduc'tion**, when a smaller number of segments occur than at the previous divisions of the parent-cycle (Hartog); ~ **Ring**, the equatorial arrangement of chromosomes; *cf.* MOTHER-STAR; ~ **Sap**, the intermediate matrix (Schwarz); ~ **Spin'dle**, slender filaments from the poles, and crossing the equator, beginning in the skein stage, and completed in the mother-star; ~ **Star** = ASTER; ~ **Threads** = SPINDLE-FIBRES; **nu'cleated**, having a nucleus or nuclei; **Nu'clein**, Strasburger's term for CHROMATIN.

**Nu'cleo-cen'trosomes** (*nucleus*, a kernel), a term used by G. Karsten in describing the nuclear division of *Psilotum triquetrum*, Sw.; probably the same as Strasburger's "Secretion bodies"; ~ **Hy'aloplasm**, Strasburger's word for LININ; ~ **Id'ioplasm**, the formative part of the nuclear hyaloplasm; ~ **Mi'crosomes** (Strasburger) = CHROMATIN?

**nu'cleolate** (*nucleus*, a kernel), possessing a nucleolus; **Nu'cleole**, **Nucle'olus**, a sharply defined point in the cell-nucleus; **nucle'olo-Nucle'olus**, = ENDONUCLEUS; **Nu'cleophyses** (*φύω*, I grow), tubular, septate projections in certain Fungi which correspond to the base of the perithecium, and ultimately become ascophyses; **Nu'cleoplasm** (*πλάσμα*, moulded) nuclear protoplasm, the nucleo-hyaloplasm of Vines; **Nucleopro'teid** (+ PROTEID), any protein which is a characteristic constituent of the nucleus.

**Nu'cleus** (Lat. a kernel), (1) the kernel of an ovule or seed, the NUCELLUS; (2) an organised proteid body of complex substance; it contains one or more nucleoli, and divides either directly by FRAGMENTATION, or indirectly by KARYOKINESIS, otherwise called MITOSIS; (3) the hilum of a starch granule; (4) in Lichens, the disk of the apothecium, containing asci; (5) in Fungi, the centre of the perithecium; (6) a clove or young bulb; ~ **Bar'rel** = NUCLEAR BARREL; ~ **of the Em'bryo Sac**, the secondary nucleus; ~ **of O'osphere**, that in the oosphere (female pronucleus) with which a spermnucleus (male pronucleus) coalesces to form a germ nucleus; **closed** ~, that kind of nucleus which occurs in the higher plants, *cf.* OPEN ~; **gam'eto-** ~, the nucleus of a gamete; **gen'erative** ~, an active nucleus in karyokinesis; **Germ** ~, a nucleus resulting from the fusion of a male and female pronucleus; *cf.* PRONUCLEUS; **O'pen** ~ the central body of Phycochromaceae, of much looser structure than in higher plants, and destitute of true nuclear membrane (Hieronymus); **Rejec'tion** ~, sister-nuclei to the female nucleus which play no part in fertilization; (Hartog); ~ **Spin'dle** = NUCLEAR SPINDLE.

**Nucula'nium** (*nucula*, a small nut), Richard's term for a drupaceous or baccate fruit containing more than one stone or seed, adopted by Lindley for a superior stony-seeded berry, such as a grape; **Nu'cule**, *Nuc'ula*, (1) a diminutive of NUTLET; (2) the female sexual organ of *Chara*; **nuculo'sus** (Mod. Lat.), containing hard nut-like seeds.

**nucumenta'ceous**, an error for NUCAMENTACEOUS.

**nude**, *nu'dus* (Lat. naked), bare, naked, in various senses.

**nudicau'lous**, *nudicau'lis* (*nudus*, naked, *caulis*, a stem), naked stemmed, not leafy; **nudius'culus** (Lat.), somewhat bare.

**nulliner'vis** (*nullus*, none, *nervus*, a nerve) = ENERVIS.

**nu'merous**, *numero'sus* (Lat., very many), in botany indefinite, not readily counted; the sign is ∞.

**Nut**, *Nux* (Lat.), a hard and indehi-

scent one-seeded fruit, often vaguely applied to such fruits as those of the Labiatae and Cyperaceae; **spu'rious** ~, a fruit which owes its hardness to something other than the pericarp, as in *Mirabilis*; *Nux bacca'ta*, a nut enclosed in a pulpy covering, as in the Yew.

**nu'tant**, *nu'tans* (Lat.), nodding.

**Nuta'tion** (*nutatio*, a nodding), the revolution of the growing tips of young organs; **revol'ving** ~ = CIRCUMNUTATION.

**Nut'let**, the diminutive of NUT, *cf.* NUCULE; variously applied to any dry independent fruit, as an achene, or part of a schizocarp.

**Nu'tricism** (*nutricius*, that nourishes), a form of symbiosis in which the Fungus becomes the nurse and feeder of the other symbiont, as in *Monotropa*; **Nutrit'ion**, the process of promoting the growth or repairing the waste caused by vital phenomena.

**Nux** (Lat., nut), see NUT.

**nyctan'thous** (*νύξ*, *νυκτὸς*, night; *ἄνθος*, a flower), used of night-flowering plants; **Nyctan'thy**, the condition of nocturnal flowering; **nyctitrop'ic** (*τροπή*, a turning), placing the leaves as during the night; **Nyctit'ropism**, assuming the sleep position.

**nymphaeform'is** (*nympha*, a pupa, *forma*, shape); Koerber applies this to chrysalis-shaped spores of some Lichens.

**Oan'gium** (*ὠὸν*, an egg, *ἀγγεῖον*, a vessel), an apocytial oogonium which forms oospores by free cell-formation, as in Saprolegnieae (Hartog).

**ob**, as a prefix, means inversely or oppositely; as obovate, inversely ovate; sometimes, but incorrectly, used for sub-.

**obcla'vate** (*ob*, inverse, *clavatus*, club-shaped), attached at the thicker end; **obcompres'sed**, *obcompres'sus* (*compres'sus*, pressed together), flattened the other way, anteroposteriorly instead of laterally; **obcon'ic**, **obcon'ical**, *obcon'icus* (*conus*, a cone), conical, but attached at the narrower end; **obcor'date**, *obcorda'tus* ( + CORDATUS), inversely heart-shaped, the notch being apical; **obcor'diform**, *obcordiform'is*, are synonyms; **obcrena'tus** (+ CRENATUS), ‡, denticulate; **obcur'rens** (*currens*, running), ‡ running together and adhering at the point of contact; **obdiploste'monous**, *-us* (*διπλόος*, double, *στήμων*, a thread), where the stamens are double the number of the petals to which the outer series are opposite; **Obdiploste'mony**, the condition itself; **obim'bricate**, *obimbrica'tus* ( + IMBRICATUS), when the imbrication is from above, downward; **oblan'ceolate**, *oblanceola'tus* (+ LANCEOLATUS), strictly speaking this cannot occur, but the word is used for tapering towards the base more than towards the apex; **ob'late** (*latus*, broad), flattened at the poles, as an orange.

**ob'ligate** (*obligatus*, obliged), necessary, essential; the reverse of FACULTATIVE; ~ **Gam'ete**, a gamete which is incapable of further development without union with another gamete; ~ **Par'asite**, an organism in which parasitism is imperative in order to attain complete development; **ob'ligatory**, **ob'ligative**, as in OBLIGATE; ~ **Sym'biont**, an organism which is dependent upon another for its existence.

**oblig'ulate**, *obligula'tus* (*ob*, inverse, + LIGULATE), used of ligulate florets of Compositae extended on the inner side of the capitulum instead of the outside; **obligu'liflorous** (*flos*, *floris*, a flower), florets which are obligulate, as in *Zoëgea*.

**oblique'**, *obli'quus* (Lat., slanting), (1) slanting; (2) of unequal sides.

**oblit'erated** (*obliteratus*, erased), suppressed; **Oblitera'tion**, suppression.

**ob'long**, *oblon'gus* (Lat., rather long),

much longer than broad, with nearly parallel sides.

**obo'val**, *obova'lis* (*ob*, inverse, + OVALIS), reversed ovate, the distal end the broader; **obo'vate**, *obova'tus*, practically the same as the last; **obo'void** (εἶδος, like), an obovate solid; **obrin'gens** (+ RINGENS), ‡ a ringent floret of the Compositae, with an anterior lip $\frac{1}{5}$th, and the posterior lip $\frac{4}{5}$ths of the whole, as though the lower lip were uppermost; **obrotun'dus** (+ ROTUNDUS), ‡ somewhat round.

**obscure'**, *obscu'rus* (Lat., dark), (1) dark or dingy in tint; (2) uncertain in affinity or distinctiveness; (3) hidden.

**ob'solete**, *obsole'tus* (Lat., worn out), wanting or rudimentary; used of an organ which is scarcely apparent or has vanished; **obsoles'cent** (+ ESCENS), nearly obsolete.

**obstruc'tus** (Lat., blocked up), where hairs or other appendages partially close the throat of a tubular corolla.

**obsubula'tus** (*ob*, inverse, + SUBULATUS), very narrow, pointed at the base and widening a little towards the apex; **obsutura'lis** (*sutura*, a seam), ‡ applied to the suture of a pericarp; septifragal.

**obtec'tus** (Lat.), covered over by something; **obtec'to-veno'sus**, when the principal and longest veins are connected only by simple cross-veins; **ob'tegens** (Lat.), covering over.

**Obtura'tor** (*obturatus*, stopped up), (1) a small body accompanying the pollen-masses of Orchids and Asclepiads, closing the opening of the anther; (2) = CARUNCLE (Hooker fil.); (3) a process of the wall of the ovary descending on the micropyle, in *Plumbago*.

**obturbina'tus** (*ob*, inverse, + TURBINATUS), reverse top-shaped, swollen at the bottom, narrowed at the top.

**obtuse'**, *obtu'sus* (Lat.), blunt or rounded at the end; ~ **An'gled**, stem-angles rounded, as in *Salvia pratensis*, Linn.; **obtusius'culus**, (Lat.), somewhat obtuse.

**obval'late**, *obvalla'tus* (*ob*, about, *vallatus*, walled round), apparently walled up, guarded on all sides; **obvalla'ris**, surrounded as by a wall, as in *Narcissus obvallaris*, Salisb.

**ob'verse**, *obver'sus* (Lat. turned towards); (1) the side facing, as opposed to reverse; (2) used when the point of a radicle in a seed approaches the hilum; **ob'versely**, in an obverse form.

**ob'volute**, *obvolu'tus* (Lat. wrapped round), a modification of CONVOLUTE, when the margins of one organ alternately overlap those of an opposite organ, such as half-equitant; **obvolu'tive** is a synonym.

**Occlu'sion** (*occlusus*, shut up), the process by which wounds in trees are healed by the growth of callus, then said to be **occlu'ded** (M. Ward).

**occulta'tus** (Lat.), hidden.

**ocean'idus** (*oceanus*, belonging to the ocean), used of a marine plant.

**ocel'late**, *ocella'tus*, **ocella'ted** (*ocellus*, a little eye), with a circular patch of colour.

**Ocel'lus** (Lat. a little eye), an eye-spot as in *Halionyx*, a genus of Diatoms.

**ochra'ceous**, *-ceus* (*ochra*, yellow earth), ochre-coloured, yellow with a tinge of red.

**O'chrea** = OCREA; **o'chreate** = OCREATE.

**ochroleu'cous**, *-cus* (ὤχρα, yellow earth, λευκὸς, white), yellowish white, buff.

**O'crea** (Lat. a greave), a tubular stipule, or pair of opposite stipules so combined; **o'create**, *ocrea'tus*, provided with ocreae.

**Octagyn'ia** (ὀκτὼ, eight, γυνὴ, a woman), a Linnean order of plants with eight-styled flowers; **octag'ynous**, *octagyn'icus*, having eight styles; **octam'erous** (μέρος, a part), in eights; **octan'der** (ἀνὴρ, ἀνδρὸς, a man), with eight stamens; **Octan'dria**, a Linnean class of plants

with eight stamens; **octan'drous**, having eight stamens.

**Oc'tant** (*octans*, a half-quadrant), the division of an oospore; ~ **Wall**, applied to the septum which cuts the oospore into octants.

**octan'therous** (*ὀκτώ*, eight, *ἀνθηρός*, flowery), having eight fertile stamens; **octari'nus** (*ἄρρην*, a male), Necker's term for OCTANDROUS.

**octofa'rious** (L. Lat.), in eight ranks or rows.

**octog'ynous** = OCTAGYNOUS.

**octoloc'ular** (*octo*, eight, *loculus*, a little place), applied to an eight-celled fruit or pericarp; **octopet'alous**, *-lus* (*πέταλον*, a flower-leaf), with eight petals; **octora'diate** (*radius*, a ray), with eight rays, as some Compositae; **octosep'alous** (+ SEPALUM), with eight sepals; **octosper'mous** (*σπέρμα*, seed), eight-seeded; **Oc'tospore** (*σπορά*, seed) = the CARPOSPORE of Porphyraceae; **octosp'orous**, eight-spored; **octoste'monous** (*στήμων*, a thread), with eight fertile stamens; **octos'tichous**, *-us* (*στίχος*, a series), in eight rows.

**oc'ulate** (*oculus*, an eye) = OCELLATE; **Oc'ulus**, (1) the first appearance of a bud, especially on a tuber; (2), the depression on the summit of some fruits, as the apple.

**-odes** (*εἶδος*, resemblance), a suffix for similar to; as *phyllodes*, like a leaf.

**od'dly pin'nate**, with a terminal leaflet, imparipinnate.

**odora'tus** (Lat.), fragrant, usually restricted to sweet smelling **O'dours**, which, in flowers, are sometimes due to essential oils which can be distilled off; at other times the scent cannot be collected by chemical means.

**Oede'ma** (*οἴδημα*, a swelling), ‡ the tumid glands on woody tissues of Conifers.

**Oecol'ogy** (*οἶκος*, a house, *λόγος*, a discourse), the study of plant-life in relation to environment; adj. **oecolog'ical**; **Oecol'ogist**, a student of the life of the plant in relation to its surroundings; NOTE.—these words are frequently spelled, **Ecol'ogy**, **ecolog'ical**, **Ecol'ogist**.

**offici'nal**, *officina'lis* (Lat., of the shops), used of medicinal or other plants procurable at shops.

**Off'set**, a lateral shoot used for propagating, as in the houseleek; **Off'shoot**, an offset.

**often-bear'ing**, producing more than once in the season, multiferous.

**-oides**, **-odes**, **-ides**, **-oideus**, suffixes from *εἶδος*, resemblance; as *petaloideus*, resembling a petal.

**Oid'ium**, pl. **Oid'ia** (*ᾠόν*, an egg, + *ἴδιον*, a diminutive), a term used to denote concatenate conidia (Cooke); not to be confounded with the form-genus *Oidium*, Link, the conidial stage of Erysipheae.

**Oil**, used for any fluid fat-bodies in plants, chiefly stearic, palmitic, or oleic acids; ~ **Cells**, gum-cells; ~ **Plas'tids**, ELAIOPLASTS; ~ **Tube**, a synonym of VITTA in the fruit of Umbelliferae.

**oleag'inous**, *-us* (*oleagineus*, pertaining to the olive), oily and succulent.

**o'leic** (*oleum*, olive oil) **Ac'id**, a glyceride or fat occurring in plants; **O'lein** or **O'leine**, one of the vegetable fats.

**ol'ens** (Lat.), smelling, especially sweetly odorous.

**Oleores'in** (*oleum*, olive oil, + RESIN), the natural admixture of a resin and an essential oil, forming a vegetable balsam or turpentine.

**olera'ceous**, *olera'ceus* (Lat., herb-like), (1) having the nature of a pot-herb, esculent; (2) ‡ growing in cultivated places (De Candolle).

**Olib'anum** (Arab., ol or al, the, Lubân, milk), a bitter and aromatic gum-resin from several species of *Boswellia*, the frankincense of commerce.

**oligan'drous**, *-rus* (*ὀλίγος*, few, *ἀνήρ*, *ἀνδρός*, a man), with few stamens; **oligan'thous**, *-thus* (*ἄνθος*, a flower), few-flowered; **oligodynam'ic** (*δύναμις*, power), Naegeli's term for the poisonous condition of water containing minute traces of copper

or brass ; it kills delicate cells of *Spirogyra* ; **oligom'erous** (*μέρος*, a part), parts consisting of few members ; **Oligom'ery**, of few parts ; **oligope'lic** (*πηλός*, clay), applied to plants which prefer certain rocks which yield a small amount of clayey detritus (Thurmann) ; **oligopsam'mic** (*ψάμμος*, sand), for plants affecting certain granite and dolomite formations (Thurmann) ; both of these classes belong to the DYSGEOGENOUS series ; **Oligophyl'la** (*φύλλον*, a leaf), Necker's expression for a bract ; **oligophyl'lous**, having few leaves ; **oligosperm'ous**, *-mus* (*σπέρμα*, a seed), few-seeded ; **oligoste'monous** (*στήμων*, a thread), with few stamens ; **Oligotax'y** (*τάξις*, order), the decrease in the number of whorls in a flower ; **oligotrop'ic** (*τροπή*, a turning), employed by Loew for bees which visit a restricted range of plants.

**oliva'ceous**, *-ceus* (*oliva*, an olive, + aceous) ; **oli'veus** (Lat.), the colour of a ripe olive ; **olivas'cens** (Lat.), turning olive-coloured ; **olivaeform'is** (*forma*, shape), shaped like an olive, drupaceous ; **ol'ive-colour**, **ol'ive-green**, yellowish green darkened with black ; **olivic'olor** (*color*, colour) = OLIVACEOUS.

**olopetalar'ius** (*ὅλος*, whole, *πέταλον*, a flower-leaf), the floral envelopes changed partially or wholly, as stamens or pistils changed into petaloid organs.

**Om'brophile** (*ὄμβρος*, a storm, *φιλέω*, I love), Wiesner's term for a plant which likes rain ; **ombroph'ilous**, rain-loving ; **Ombroph'ily**, the condition described ; **Om'brophobe** (*φόβος*, fear), a similar term for a plant disliking rain ; **ombroph'obic**, hating rain ; **Ombroph'oby**, dislike or impatience of rain.

**omniv'orous** (*omnivorus*, all devouring), applied to parasites which attack many species and are not confined to one host-plant.

**Omoplephy'tum** (*ὁμοπλεκής*, interlaced, *φυτόν*, a plant), applied to a monadelphous flower, the stamens being in one bundle.

**Om'phalode**, *Omphalo'dium* (*ὀμφαλός*, navel, *εἶδος*, like), the mark in the hilum through which the vessels pass to the chalaza.

**one-ribbed**, having one prominent rib, as in the leaves of many grasses ; **~ si'ded**, (1) turned to one side ; (2) the parts turned the same way ; (3) unequal sided.

**onisciform'is** (*oniscus*, a wood-louse, *forma*, shape), Koerber's word for certain Lichen-spores resembling a wood-louse in shape ; **onis'cus** (Lat.), used for lead-coloured, from the tint of the same creature.

**Onomatolo'gia** (*ὄνομα*, a name, *λόγος*, discourse), the rules to be observed in the construction of names.

**Ontog'eny** (*ὄντα*, things existing, *γένος*, race, offspring), the development of an individual in its various stages ; adj. **ontogenet'ic**.

**ooblas'tic** (*ὠόν*, an egg, *βλαστός*, a bud) **Fil'aments**, see next ; **Ooblaste'ma** (*βλάστημα*, a sprout) **Fil'aments**, the FERTILISING TUBES of Schmitz ; **O'ocyst** (*κύστις*, a bag), a female organ, an OOGONIUM ; **Oogam'ete** (+ GAMETE), a female gamete (Hartog) ; **oog'amous** (*γάμος*, marriage), conjugation in which the two coalescing gametes are of dissimilar form ; **Oog'amy**, the reverse condition of ISOGAMY ; the female gamete never active, the male a spermatozoon, and the product an OOSPERM (Hartog) ; **Oogem'ma** (*gemma*, a bud), Caruel's term for ARCHEGONIUM ; **Oogen'esis** (*γένεσις*, beginning), the development of the egg, the early stage of the ovule ; **O'ogone**, *Oogo'nium*, pl. *Oogo'nia* (*γονή*, race, offspring), a female sexual organ, usually a spherical sac, containing one or more oospheres ; **ookinet'ic** (*κίνητικος*, putting in motion), tending to produce the female element ; **Ool'ysis** (*λύσις*, a loosing), viridescence, especially in carpels and ovules (Penzig) ; **Oomyce'tes** (*μύκης*,

a mushroom), those Fungi which reproduce sexually by antheridia and oogonia, the result being an oospore (Tubeuf); **Oonu'cleus** (+ NUCLEUS), the nucleus of an oosphere, *cf.* SPERM - NUCLEUS; **O'ophore** (*φορέω*, I carry), the OOPHYTE in Archegoniatae; **Oophoridan'gia** (*ἀγγεῖον*, a vessel), J. Smith's name for the macrosporangia of *Marsilea*, etc; **Oophorid'ium**, a sporangium containing macrospores in *Selaginella*; **O'ophyte** (*φυτὸν*, a plant), that portion of the life-cycle of a plant during which it bears sexual organs; the same as OOPHORE; **O'oplasm** (*πλάσμα*, moulded), the protoplasm of the oosphere; **O'osphere** (*σφαῖρα*, a globe), a naked and nucleate mass of protoplasm, which, after coalescence with the sperm-nucleus, develops into an oosperm; the egg or ovum; **Com'pound** ~, one which contains several or many functional sexual nuclei, as in *Albugo* (Stevens); **O'osperm** (*σπέρμα*, seed), the product of the fusion of a male and a female cell; **Oosporan'ge** = **Oosporan'gium**, pl. **Oosporan'gia** (*σπορὰ*, a seed, *ἀγγεῖον*, a vessel), the sacs or sporangia which produce oospores; **O'ospore**, the immediate product of fertilisation in an oophore; **Oothe'ca** (*θήκη*, a case), the theca or sporangium of Ferns.

**opa'cus** (Lat., shady, giving shade), (1) not transparent; (2) dull, not shining; **opake** and **opaque** are anglicised forms of the word.

**o'pen**, not closed; as ~ **Bun'dle**, one which retains a portion of cambium capable of further differentiation; opposed to closed bundle; ~ **Nu'cleus**, the nucleus of Cyanophyceae (Hieronymus).

**O'pening**, expanding or becoming unclosed; ~ **Cells**, those special cells by which the dehiscence of sporangia and pollen-sacs takes place (*a*) either by tangential contraction on drying, or (*b*) by a thickening which causes a hinge-like motion of the cells themselves (Schinz); *cf.* LIP-CELLS; ~ of **Flow'ers**, the expansion of the members at the period of maturity; anthesis.

**oper'cular**, **oper'culate**, *opercula'tus* (*operculum*, a lid), furnished with a lid, as in many Mosses and Myrtaceae; **Oper'cule**, the lamina of the leaf of *Sarracenia* (Heckel); **oper'culiform** (*forma*, shape), shaped like a lid; **Oper'culum**, a lid or cover which separates by a transverse line of division, as in the pyxis, and Moss capsules; also in some pollen grains.

**oper'tus** (Lat., hidden), the same as *tectus*.

**opisthe'lial**, an error for **opis'thial** (*ὀπίσθιος*, hinder) **Pore**, Tschirch's name for the posterior border of a stoma; **opis'thodal** is a synonym; *cf.* EISODIAL; **opisthod'romous** (*δρόμος*, a course), a flower is so termed, when the genetic spiral is assumed to pass as its shortest way from the bract to the first floral segment by the back of the flower, between it and the axis of the stem.

**oph'iure** (*ὄφις*, a snake, *οὐρὰ*, a tail) **Cells**, used by Jönsson for ASTROSCLEREIDS of Tschirch; the name is from their resemblance to Echinoderms.

**O'pium** (Lat., dried poppy - juice), the concrete juice from the capsules of *Papaver somniferum*, Linn.; ~ **Al'kaloids** are numerous, the best known being Morphia.

**Oplar'ium** (*ὁπλάρια*, arms), Necker's word for SCYPHUS.

**op'posite**, *opposi'tus* (Lat., standing in front); (1) set against, as leaves when two on one node; (2) one part before another, as a stamen in front of a petal; **opposi'te-pinn'atus**, with leaflets on the same plane at right angles to the common petiole; **oppositiflor'us** (*flos, floris*, a flower), having opposite peduncles; **oppositifo'lious** (*folium*, a leaf); (1) with

opposite leaves; (2) opposite a leaf, as a tendril; **oppositipet'alous**, *-lus* (*πέταλον*, a flower-leaf), placed before a petal; **oppositisep'alous** (+SEPAL), situated before a sepal; **oppositi'vus** (Lat.), when one part stands before another, the reverse of "alternate."

**Opseosper'mata** (*ὄψις*, *ὄψεως*, sight, *σπέρμα*, a seed), tubercles on the surface of some Algals containing spores (Lindley).

**Opsig'ony** (*ὀψιγονος*, posthumous), the production and development of proventitious buds (Wittrock); *cf.* PROLEPSIS.

**op'timal** (*optimus*, best), the most advantageous for an organism or function; **Op'timum** refers to the degree of temperature, light, etc., which best conduces to the vital activities of a given organism.

**O'rae** (*ora*, extremity) **Radi'cum** ‡ = SPONGIOLES.

**Or'ange**, (1) the fruit of *Citrus Aurantium*, Linn.; (2) a secondary colour, red and yellow combined, taking its name from the tint of the fruit mentioned.

**orbic'ular**, *orbicula'ris* (Lat., circular), of a flat body with a circular outline; **orbic'ulate**, *orbicula'tus*, disk-shaped; **Orbic'ulus**, (1) the fleshy corona in the genus *Stapelia*; (2) a round flat hymenium in Fungi.

**Orbil'la** (*orbis*, an orb), the shield of certain Lichens, as in *Usnea*.

**Orchel'la**, a general term for Lichens which yield dyes, as *Lecanora*, *Roccella*, etc.

**orchida'ceous**, *-eus*, (1) furnished with two tubers at the roots, as species of the genus *Orchis* and its allies; (2) pertaining to the order Orchideae; **orchid'eous**, relating to the Orchideae.

**Or'chil**, also known as CUDBEAR, and LITMUS, a valuable dye from *Lecanora tartarea*, Ach., and other Lichens.

**Or'cin**, the colouring principle from various tinctorial Lichens.

**orculaeform'is** (*orcula*, a small tun, *forma*, shape), used by Koerber for cask-shaped Lichen-spores.

**Or'der**, *Or'do* (Lat., methodical arrangement), in botany, a group between genus (tribe, suborder), and class; **or'dinal**, relating to an order, as ~ **Char'acter**, that which marks it off from kindred orders.

**Or'gan** (*ὄργανον*, an instrument), any definite part of a structure, as a cell, a fibre, a leaf, etc.; **Or'gans of Reproduc'tion**, those which are concerned in the production of seeds or spores; in Phanerogams the stamens and pistils are so termed; ~ **of Vegeta'tion**, those connected with the growth simply, as roots and leaves; **organ'ic**, *organ'icus*, relating to living organs; ~ **Cen'tre**, the point or axis around which growth takes place, it may not be the structural centre; **Organog'eny** (*γένος*, race, offspring), or **Organogen'esis** (*γένεσις*, beginning), the formation and development of organs from their primitive condition; adj. **organogenet'ic**; **Organog'raphy** (*γράφω*, I write); **Organol'ogy** (*λόγος*, discourse), the study of organs and their relations; **Or'ganoid** (*εἶδος*, like), an organ of apparently unknown function (Swingle); **Or'ganism**, a body possessing organic structure; **organoplas'tic** (*πλαστικὸς*, suitable for being wrought), with the power of producing organs.

**Or'gya** (*ὀργυιὰ*, a fathom), six feet in height; **orgy'alis**, a fathom long, the height of a man.

**Orienta'tion** (*oriens*, the east), (1) the correct placing with regard to the quarters of the compass; (2) generally means relative position, as applied to organs, etc.

**Or'ifice**, *Orific'ium* (Lat., an opening), an opening by which spores, etc., escape; ostiole.

**Orig'oma** = ORYGOMA.

**Ornithoph'ilae** (*ὄρνις*, *ὀρνίθος*, a bird, *φιλέω*, I love), plants habitually

fertilised by pollen brought by birds ; adj. **ornithoph'ilous.**

**Or'mogon,** cited by Crozier, = HORMOGONE.

**Or'thoblast** (*ὀρθὸς*, upright, *βλαστὸς*, a bud), used by Cramer for confervoid prothallia growing in an ascending direction ; **Orthophototax'y** (*φῶς*, *φωτὸς*, light, *τάξις*, order), the direct arrangement of such organisms as *Volvox* and *Spirogyra* assumed under the stimulus of light (Oltmanns) ; **orthophototrop'ic** (*προπὴ*, a turning), the direct influence of light shown in *Vaucheria*, *Phycomyces*, and shoots of flowering plants (Oltmanns).

**Orthoploc'eae** (*πλοκὴ*, a twining), those Cruciferae which have conduplicate cotyledons ; **orthoplo'ceous**, *-ceus*, when the incumbent cotyledons are folded round the radicle ; **Orthosper'meae** (*σπέρμα*, a seed), plants whose seeds have albumen flat on the inner face, neither involute or convolute ; **Or'thostichy**, pl. **Or'thostichies** (*στίχος*, a row), a vertical row, as in phyllotaxis ; **orthos'tichous**, straight ranked ; **orthos'tomous** (*στόμα*, a mouth), with a straight opening ; **orthotac'tic** (*τάξις*, order), used by S. Moore in the sense of normal, applied to an interval in the PHOTRUM ; **orthot'ropal, orthot'ropous** (*τροπὴ*, a turning), used of an ovule with a straight axis, the chalaza being at the insertion and the orifice or foramen at the opposite end, farthest from the hilum ; **orthotrop'ic**, assuming a vertical position.

**Oryg'oma** (*ὄρυγμα*, a ditch or pit), Necker's term for the cup of a *Marchantia* containing gemmae.

**Os, Or'is** (Lat.), a mouth or orifice.

**oscilla'ting** = VERSATILE ; **oscilla'nus**, *oscillator'ius* (Lat. from *oscillatio*, a swinging), has the same meaning.

**Os'culum** (Lat. a little mouth) = OSTIOLE.

**Osmom'eter** (*ὠσμὸς*, a thrusting, *μετρον*, a measure), an instrument to measure OSMOSIS ; **Os'mose**, *Osmo'sis*, the diffusion of liquids through membranes ; adj. **osmo'tic.**

**os'seous**, *os'seus* (Lat.), bony.

**Ossic'ulus**, *Ossic'ulum* (Lat., a little bone), the pyrene of a fruit, as a medlar.

**os'sified** (*os*, *ossis*, a bone, *facio*, I make), becoming hard as bone, as the stones of drupes, such as the peach and plum.

**Ostariphy'tum** (*ὀστάριον*, a little bone, *φυτὸν*, a plant), a plant which produces a drupe or drupe-like fruit.

**Osteoscle'reids** (*ὀστέον*, a bone, *σκληρὸς*, hard), the "bone-shaped" sclereids of *Hakea*.

**os'tiolate**, *ostiola'tus* (*ostiolum*, a little door), furnished with an opening or mouth ; **Os'tiole**, *Os'tiolum*, (1) the opening of the conceptacle in some Algae ; (2) the aperture through which spores escape from the perithecium.

**ostracodermat'inus** (*ὄστρακον*, a hard shell, *δερμάτινος*, leathern), resembling the shells of mollusca, applied to certain Lichens.

**-o'sus**, a termination indicating augmentation, as *radio'sus*, large-rooted.

**out'er**, exterior, abaxial ; **~ Glumes**, one or more glumes at the base of a spikelet in grasses, enclosing one or more flowers ; **~ Perid'ium** = PERIDIUM EXTERNUM.

**Out'growth**, (1) another name for EMERGENCE ; (2) a tuberous excrescence on roots.

**Out'line**, the continuous boundary-line of an organ, as a leaf.

**o'val**, *ova'lis* (*ovum*, an egg), broadly elliptic.

**Ovarioph'ylly** ("*ὠάριον*, *ovulum*," *φύλλον*, a leaf), descending metamorphosis of a carpel into a leaf (Morren).

**O'vary**, *Ova'rium* (*ovum*, an egg), that part of the pistil which contains the ovules, the immature fruit, formerly termed the GERMEN.

**o'vate**, *ova'tus* (Lat., egg-shaped), (1) shaped like a longitudinal section of a hen's egg, the broader end basal ; (2) used for ovoid.

**Ovel'lum**, Dunal's term for a young carpel bearing the same relation to a mature carpel as an ovule to a seed.

**Ovench'yma** (*ovum*, an egg; ἔγχυμα, an infusion), loose tissue of oval-shaped cells.

**overhang'ing**, projecting beyond the base.

**o'viform**, *oviform'is* (*ovum*, an egg, *forma*, shape), ovoid, egg-shaped; **o'void**, *ovoi'deus* (εἶδος, resemblance), an egg-shaped solid; **ovoi'dal**, having the outline of an egg; **ovula'ris** (Mod. Lat.) = OVOID; **ov'ulate**, *ovula'tus*, (1) possessing ovules; (2) somewhat ovoid (Henslow); **Ov'ule**, *Ov'ulum*, the young seed in the ovary, the organ which after fertilisation develops into a seed; ~ **Tube**, a thread-like extension of the amnios, rising beyond the foramen; **ovulif'erous** (*fero*, I bear), bearing ovules, adj. **ov'ular**; **O'vum**, (1) the ovule; (2) = ZYGOTE; (3) = OOSPHERE.

**oxal'ic**, pertaining to *Oxalis*, wood sorrel; ~ **Ac'id**, a vegetable acid of frequent occurrence; **oxalif'erous** (*fero*, I bear), producing oxalic acid or its salts; **Oxalileu'cite** (+ LEUCITE), Van Tieghem's name for a vacuole which contains oxalic acid.

**oxyacan'thous**, *-thus* (ὀξύς, sharp, ἄκανθα, a thorn), furnished with many thorns or prickles; **oxycar'pus** (καρπός, fruit), when fruit is sharp-pointed; **Oxycel'luloses** (+ CELLULOSE) constitute the main mass of the ground tissue of Phanerogams, and occurs with lignin in the walls of wood-cells; **Ox'ydases**, a general term for oxydising enzymes (Green).

**Pac'ket-form**, the association of bacteria in such colonies as *Sarcina*.

**pachycar'pus** (παχύς, thick, καρπός, fruit), having a thick pericarp; **pachyder'mous** (δέρμα, skin or hide), applied to Mosses when the cells or capsules are firm and resistant; **pachyphyl'lous** (φύλλον, a leaf), thick-leaved; **pachystich'ous** (στίχος, a row), thick-sided, applied to cells only.

**Pad**, (1) a cushion-like growth; *cf.* SUBARCHESPORIAL PAD; (2) a popular name in the United States for the floating leaves of water-lilies.

**Pa'gina** (Lat., a leaf), the blade or surface of a leaf.

**paint'ed**, having coloured streaks of unequal density.

**paired**, conjugated, used of the teeth in the peristome of Mosses; **Pairing-cell**, an equivalent of GAMETE.

**pala'ceous**, *-ceus* (*pala*, a spade or shovel, + aceous), when the edges of an organ, especially of a leaf, adhere to their support.

**palaea'ceous** = PALEACEOUS.

**Palaeobot'any** (παλαιός, ancient, βοτάνη, a herb), fossil botany, the study of plants in a fossil state; **Palaeophytol'ogy** (φυτόν, a plant, λόγος, discourse), the science of palaeobotany.

**pa'lar**, *pala'ris* (Lat., pertaining to a pale or stake), when the root is perfectly continuous with the stem; **pala'ri-ramo'sus**, when a palar root has many branches.

**Pal'ate**, *Pala'tum* (Lat., the palate), (1) the prominent lower lip of a ringent corolla; (2) the projection in the throat of a personate gamopetalous corolla.

**Pale**, **Pa'lea** (Lat., chaff), (1) the chaffy scales on the receptacle of many Compositae; (2) the inner bract or glume in grasses, called "Palet" by North American writers; (3) the ramenta or chaffy scales on the stipe of many Ferns; ~ *clathra'ta*, the latticed scale of Ferns (Luerssen); **palea'ceous** (+ aceous), chaffy, furnished with paleae or chaff-like in texture; **paleaeform'is** (*forma*, shape), resembling paleae; **Pal'eola**, a diminutive of palea, or of secondary order, applied to the LODICULE of grasses; **pal'eolate**, *paleola'tus*, furnished with a lodicule; **paleo-**

**lif'erous** (*fero*, I bear), bearing paleae; **pa'leous**, chaffy.

**Paleophytol'ogy** = PALAEOPHYTOLOGY.

**Pal'et** = PALEA.

**Palingen'esis** (*πάλιν*, again, *γένεσις*, a beginning), Haeckel's term for the doctrine of simple descent; also written **Palin'geny**.

**Pal'isade Cells**, perpendicular elongated parenchyma cells on the surface of most leaves; ~ **Parench'yma**, ~ **Tis'sue**, tissue composed of the said cells.

**pal'lens** (Lat., wan), pale in colour; **palles'cent**, becoming light in tint; **pal'lid**, *pal'lidus*, somewhat pallid; **pallid'ulus**, slightly pallid.

**Pal'lium** (Lat., a covering or garment), a presumed gelatinous envelope of Diatoms.

**Palm** (*palma*, the palm of the hand), three inches, the width of the hand; ~ **veined** = PALMATELY VEINED; **palmar'is** (Lat.), the breadth of the palm, about three inches; **pal'mate**, *palma'tus*, lobed or divided, so that the sinuses point to the apex of the petiole; **pal'mately**, in a palmate manner, as ~ **cleft** = PALMATIFID; ~ **com'pound**, ~ **divi'ded**, ~ **lobed** = PALMATILOBATE; ~ **nerved** = PALMATINERVIS; ~ **part'ed** = PALMATIPARTITE; ~ **veined** = PALMATINERVIS; **palmatiform'is** (*forma*, shape), the venation arranged in a palmate manner; **palmat'ifid**, *palmatif'idus* (*findo*, *fidi*, to cleave), cut in a palmate fashion nearly to the petiole; **palmatilo'bate** (*lobatus*, lobed), palmately lobed; **palmatiner'vis** (*nervus*, a nerve), palmately nerved; **palmatipart'ite** (*partitus*, divided), cut nearly to the base in a palmate manner; **palmat'isect**, *palmatisect'us* (*sectus*, cut), palmately cut.

**Palmel'la** (*παλμός*, palpitation), the zoogloea stage of Schizomycetes, etc., when embedded in a jelly-like mass; not to be confounded with the algal genus, *Palmella*, Lyngb.

**Palmel'lin**, Phipson's name for the colouring matter of *Palmella cruenta*, Agh.; **palmel'loid** (*εἶδος*, resemblance), characteristic of the genus named.

**palmif'erous** (*palma*, a date palm, *fero*, I bear), producing palms.

**pal'miform** (*palma*, palm of the hand, *forma*, shape) = PALMATIFORM; **palminer'ved**, *palminer'vis* = PALMATINERVIS.

**palmit'ic** (*palma*, a palm), relating to palms, as ~ **Ac'id**, derived from **Pal'mitin**, a glyceride, a solid fat occurring in palm oil.

**Pal'mus** (Lat., the palm of the hand), as a measure may denote a SPAN or a PALM, nine inches or three.

**palu'dal** (*palus*, a marsh), Watson's term for natives of marshes, wet all through the year; **pal'udine**, **palu'dinous** (Crozier) = **pal'udose**, *paludo'sus* (Lat., boggy), growing in marshy places.

**palumbi'nus** (Lat., of wood-pigeons), lead-coloured.

**palus'ter** (Lat., swampy), **palus'trine**, *palus'tris*, inhabitating boggy ground; the latter Latin form is more usual in botanic usage.

**pam'piniform** (*pampinus*, a tendril, *forma*, shape), resembling the tendril of a vine.

**Pan-apos'pory** (*πᾶς*, *παντός*, all, + APOSPORY), the condition of prothalli being developed aposporously over the entire surface of the frond.

**pan'durate**, *pandura'tus* (*pandura*, a musical instrument), fiddle-shaped, as the leaf of *Rumex pulcher*, Linn.; **pandu'riform** (*forma*, shape), resembling the same.

**Pangen'esis** (*πᾶς*, *παντός*, all, *γένεσις*, beginning), a theory that each separate unit of a body throws off minute gemmules during all stages of development, which may develop it once, or remain dormant and be transmitted through the reproductive cells to later generations; **Pan'gens**, De Vries's term for the active particles assumed in Darwin's theory of Pangenesis.

**Pan'icle**, *Panic'ula* (Lat., a tuft),

a loose flower-cluster, as a branched raceme or corymb; **pan'icled**, furnished with a panicle; **panic'ulate**, *panicula'tus* (Lat.), having an inflorescence of the kind described; **panic'uliform** (*forma*, shape), panicle-shaped (Crozier).

**Panifica'tion** (*panis*, bread, *facio*, I make), the fermentative changes by which dough is converted into bread.

**Panmix'ia** (*πᾶς*, *παντὸς*, all, *μίξις*, a mixing), Weismann's term to denote the agency of modification or evolution which results from the cessation of natural selection.

**pan'nary** (*panis*, bread), pertaining to bread, or suitable for making it (Crozier); more correctly **pan'ary.**

**Pannexter'na** (*pannus*, a cloth, *externus*, outside), = EPICARPIUM; **pan'niform**, *panniform'is* (*forma*, shape), having the appearance or texture of felt or woollen cloth; **Panninter'na** (*internus*, within) = ENDOCARPIUM; **panno'sus** (Lat. ragged), botanically, the same as panniform.

**panphotomet'ric** (*πᾶς*, *παντὸς*, all, *φῶς*, *φοτὸς*, light, *μέτρον*, a measure), used of leaves which adapt their position to both direct and diffused light (Wiesner); **Pansperm'ism** (*σπέρμα*, a seed), the universal diffusion of germs throughout the atmosphere.

**pantachob'ryus** ‡ (*παντα χῆ*, on every side, *βρύω*, I grow), growing in a circular manner.

**pantog'enous** (*πᾶς*, *παντὸς*, all, *γένος*, race, offspring), applied to Fungi which grow everywhere, and are not confined to a single host.

**Papa'in**, a peptic enzyme from *Carica Papaya*, Linn.

**papavera'ceous**, belonging to, or resembling the poppy, *Papaver*; **papa'verous**, resembling a poppy.

**pa'pery**, having the texture of paper, *cf.* CHARTACEOUS, PAPYRACEOUS.

**papiliona'ceous** (*papilio*, a butterfly + aceous), a butterfly-shaped corolla, as in the suborder Papilionaceae of Leguminosae.

**Papil'la** (Lat. a nipple), pl. **Papil'lae**, (1) soft superficial glands or protuberances; (2) "Also the aciculae of certain Fungals" (Lindley); **papil'lar**, *papilla'ris*, **papil'lary**, resembling papillae; **pap'illate**, *papilla'tus* (Lat. bud-shaped), having papillae; **papillif'erous**, *-rus* (*fero*, I bear), producing papillae; **papil'liform** (*forma*, shape), shaped like a papilla; **pap'illose**, *papillo'sus* (Lat.), covered with papillae.

**pappif'erous** (*pappus*, plant-down, *fero*, I bear), bearing pappus; **pap'piform**, *pappiform'is* (*forma*, shape), resembling pappus; **Pap'po**, Blair's word for the down of thistles; **pap'pose**, *pappo'sus*, **pap'pous**, having pappus; **Pap'pus**, thistledown, the various tufts of hairs on achenes or fruits, the limb of the calyx of Composite florets.

**Pap'ula** (Lat. a pimple), a pimple or small pustule; **papulif'erous**, *-rus* (*fero*, I bear), bearing pustules; **pap'ulose**, *papulo'sus*, **pap'ulous**, papillose.

**papyra'ceous**, *papyra'ceus* (Lat. made of papyrus), (1) papery; (2) white as paper; ~ **Ferns**, filmy Ferns.

**parabol'ic**, **parabol'ical**, *parabol'icus* (*παραβολή*, a parabola), in botany, ovate-oblong or ovate, obtuse and contracted below the apex, used of a leaf.

**Parabux'ine** (*παρὰ*, from beside, + BUXINE), and **Parabuxin'idine**, alkaloids occurring in *Buxus sempervirens*, Linn.; **Paracal'lus** (+ CALLUS), a substance resembling the callus of sieve-tubes, but differing in reaction and chemical constitution; **Paracarp'ium** (*καρπὸς*, fruit), (1) an abortive pistil or carpel; (2) the persistent portion of some styles or stigmas; **Paracel'lulose** (+ CELLULOSE) forms the epidermal cells of plants; **parachromophor'ic** (*χρῶμα*, colour, *φορέω*, I carry), applied to bacteria whose colouring is an excretory product, but adheres to the organisms; **Paracorol'la** (+ COROLLA),

any appendage to a corolla, the corona of a flower; **Par'acyst** (*κύστις*, a bag), Tulasne's term for gametes in *Peziza*, etc.; **Paradiphyl'lum** (*δίς*, twice, *φύλλον*, a leaf), a double leaf resulting from dichotomy of the lamina (Kronfeld).

**par'affinoid** (+ Paraffin, *εἶδος*, resemblance), Kerner's term for a group of scents, such as the Rose, Lime, and Elder.

**Paragalac'tan** (*παρά*, from beside, + Galactan), a reserve substance in the seeds of lupins; **Parag'amy** (*γάμος*, marriage), vegetative or gametal nuclei lying in a continuous mass of cytoplasm which fuse to form a zygote nucleus; **apocyt'ial** ~, the vegetative nuclei of an apocytium which fuse to form an "Oospore" in Saprolegnieae (Hartog); **Paragen'esis** (*γένεσις*, beginning), all modes of reproduction resulting in a body which simulates a zygote in the same or allied forms (Hartog); **Paraheliot'ropism** (+ HELIOTROPISM), diurnal sleep, the movements of leaves to avoid the effects of intense sunlight; *cf.* PARATHERMOTROPIC; **Parali'nin** (+ LININ), the substance composing the nucleo-hyaloplasm (Schwarz).

**par'allel** (*παράλληλος*, parallel), extended in the same direction, but equally distant at every part; ~ **Chor'isis**, lateral separation into two or more members; ~ **nerved**, ~ **ner'vis**, ~ **veined**, *parallelive'no'sus*, straight nerved or veined; (1) the lateral ribs straight as in *Alnus*; (2) the entire system, as in the leaves of grasses; **parallelod'romous**, *-mus* (*δρόμος*, a course), having parallel veins, as in lilies (Ettingshausen).

**paramerid'ian** (*παρά*, from, beside, + MERIDIAN), used of planes in a Diatom-frustule which are parallel to the meridian (O. Mueller); **Paramit'om** (+ MITOM), Flemming's term for the more fluid portion of the cell-substance contained in the MITOM; the paraplasma of Kupffer; **Param'yl**, **Paramy'lum** (*ἄμυλον*, fine flour), a mucilaginous substance probably akin to starch, in the cytoplasm of some Algae, as Phaeophyceae and Rhodophyceae; **Parane'mata**, pl. (*νῆμα*, a thread), the paraphyses of Algae; adj. **parane'matal**, as ~ **Fil'aments** = PARANEMATA; **Paranu'cleolus** (+ NUCLEOLUS), a secondary nucleolus when there are more than one (Strasburger); **Paranu'cleus** (+ NUCLEUS), an apparently additional nucleus, generally near the true nucleus, and sometimes budded off from it; **parapec'tic** (+ PECTIC) **Ac'id**, derived from pectin by the action of alkalis; **Parapec'tin**, hydrolysed pectin; **Parapet'alum** (*πέταλον*, a flower-leaf), any appendage to a corolla, consisting of several pieces (Moench); **parapet'alous**, *-lus*; **parapet'aloid** (*εἶδος*, likeness), (1) bearing a parapetalum; (2) of stamens which stand on each side of a petal; **Paraphyl'lium** (*φύλλον*, a leaf), (1) = STIPULE; (2) a foliaceous expansion in some calyces; (3) a small interfoliar appendage on Moss-stems; **Paraph'yses** (*φύσις*, growth), (1) sterile filaments occurring in the fructification of Cryptogams; (2) the rays of the corolla in *Passiflora*, the parastades; (3) formerly used for the cystidia of Fungi; ~ **En'velope**, the peridium of Uredineae; adj. **paraph'ysate**; **Paraplas'ma** (*πλάσμα*, moulded), the more liquid interfilar portions of protoplasm; **Paraplectench'yma** (+ PLECTENCHYMA), a modification of hyphal-tissue (Lindau).

**Par'asite** (*παράσιτος*, one who lives at another's expense), an organism subsisting on another (the host); ~ **Sap'rophyte**, a parasite which kills its host and then continues to feed on it; **parasit'ic**, deriving nourishment from some other organism; ~ **Castra'tion**, sterility induced by the effects of a parasite; **Parasi'tus spu'rius** = EPIPHYTE.

**parasiti'sed**, infected by a parasite; **Par'asitism**, the state of preying upon another organism; **Parasperma'tia** (+ SPERMATIA), small reproductive bodies resembling spores, found in some Algals (Lindley).

**Paras'tades** (*παραστὰς*, a door-post), the coronal rays of *Passiflora*, *cf.* PARAPETALA.

**Parasta'men** (+ STAMEN) or **Paraste'mon** (*στήμων*, a filament), an abortive stamen, a staminodium.

**Parast'ichy**, *Parastich'ies* (*παρὰ*, from beside, *στίχος*, a series), a secondary spiral in phyllotaxis; **Par'astyle** (+ STYLE), an abortive style; **Parasymbio'sis** (+ SYMBIOSIS), when the hyphae of a parasite envelope the algal constituents of a Lichen and inflict injury (Zopf); **parathermotrop'ic** (*θερμὸς*, warm, *τροπὴ*, a turning), proposed by Macfarlane for paraheliotropic, is such cases as the movements of leaves in *Drosera*, *Oxalis* and *Mimosa*; **paraton'ic** (*τόνος*, tension), effect of light in retarding growth; **paratransver'san** (*transversus*, lying across), used of the planes parallel to the transversan plane of a Diatom frustule (O. Mueller); **paraval'var** (+ VALVE), applied to those planes which are parallel to the valvar plane of a Diatom, either epithecal or hypothecal (O. Mueller).

**Parench'yma** (*παρεγχέω*, I pour in beside), used by Grew, and since his time for the tissue composed of cells more or less isodiametric, especially such tissue as the pith and mesophyll; **parenchy'matous**, consisting of parenchyma, spongy, porous.

**Parich'nos** (*παρὰ*, beside, *ἴχνος*, a footprint), the two lateral prints on the leaf-scar of Lepidodendreae.

**Par'ies** (Lat., a house wall), pl., **Par'ietes**, the wall of any organ; **pari'etal**, *parieta'lis*, borne on or belonging to a wall; ~ **U'tricle**, used by Noll for the layer of protoplasm next the cell-wall; **Pari'etin**, the colouring matter found in the Lichen, *Physcia parietina*, De Not.

**paripin'nate**, *paripinna'tus* (Lat.), pinnate, with an equal number of leaflets, that is, without a terminal one.

**paroe'cious** (*παρὰ*, from beside, *οἶκος*, a house), in Mosses, having the male and female organs in the same inflorescence, the male naked in the axils of the lower bracts; **paroi'cous** is a synonym; **Parorthot'ropism** (*ὀρθὸς*, right, *τροπὴ*, a turning), Archangeli's term when leaves place themselves with the lamina vertical, but not necessarily meridional.

**part'ed**, **part'ite**, *parti'tus* (Lat.), cleft, but not quite to the base.

**Parthenogam'ete** (*παρθένος*, virgin + GAMETE), a gamete which develops without pairing (Hartog); **Parthogen'esis** (*γένεσις*, origin), a form of apogamy in which the oosphere develops into the normal product of fertilisation without a preceding sexual act; **Parthenog'eny** (*γένος*, race, offspring), has the same meaning; **Parthenogonid'ia** (*γονὸς*, offspring), reproductive cells in a colony of *Volvox Globator*, Linn., acting asexually; **Par'thenosperm** (*σπέρμα*, a seed), a body resembling a zygospore, but not resulting from the coalescence of the contents of two sexually different cells; **Par'thenospore** (*σπορὰ*, a seed), is the same thing.

**par'tial**, *partia'lis* (Lat.), in botany usually means secondary, as ~ **Involu'cre**, ~ **Ped'uncle**, ~ **Pet'iole**, ~ **Um'bel**; it is opposed to "general."

**par'tible**, *partib'ilis* (Lat., divisible), ultimately separating, or easily separable.

**par'tim** (Lat.), partly; other expressions are *ex parte*, *pro parte*.

**Partit'ion** (*partitio*, a division into parts), (1) a wall or dissepiment; (2) a separated part or segment; (3) the deepest division into which a leaf can be cut without becoming compound (Lindley).

**parti'tus** (Lat.) = PARTED.

**Par'tridge-wood**, oak-wood destroyed by *Stereum* (Tubeuf).

**parviflor'us** (*parvus*, small, *flos*, *floris*, a flower), having smaller flowers than in its congeners; **parvifo'lius** (*folium*, a leaf), with smaller leaves than the allied species; **par'vus** (Lat.), small.

**Pas'sage Cells**, cells in the exodermis or endodermis of roots which retain thin unaltered walls, by which water can pass.

**Pas'salus** (πάσσαλος, a peg), a gamosepalous calyx.

**pas'cual** (*pascuum*, a pasture), H. C. Watson's term for plants which grow in pastures and grassy commons, amongst less rank herbage than "pratal"; **pas'cuus** (Lat.), relating to pastures.

**Pasteuriza'tion**, the preservation of fermenting liquids by heating to about 140° Fahr., so as to germinate and then destroy Fungi and their spores contained in the fluids treated (Crozier).

**Patel'la** (Lat., a small dish), an orbicular sessile apothecium, with a marginal rim distinct from the thallus; **patellar'oid** (εἶδος, likeness), resembling a patella; **patel'liform**, *patelliform'is* (*forma*, shape), shaped like a small dish, circular and rimmed; **Patel'lula**, a diminutive patella; **patel'lulate**, possessing patellulae.

**pa'tent**, *pat'ens* (Lat.), spreading; **patentis'simus** (Lat.), extremely spread out.

**pat'eriform** (*patera*, a dish or saucer, *forma*, shape), saucer-shaped.

**Path-fi'nders** = HONEY-GUIDES, lines of colour leading to nectaries.

**pathogen'ic**, **pathog'enous** (πάθος, suffering, disease, γένος, race, offspring), producing disease; **Pathogene'ity**, the quality of disease giving; **Pathol'ogy** (λόγος, discourse), the science of diseases; **Veg'etable** ~, that department of botany which treats of plant diseases.

**pat'ulous**, *-lus* (Lat.), slightly spreading.

**pauciflor'ous**, *-rus* (*paucus*, few, *flos*, *floris*, a flower), few flowered; **paucifo'lius** (*folium*, a leaf), having few leaves; **paucijuga'tus** (*jugum*, a yoke), with only a few pairs of leaflets in a pinnate leaf.

**pau'siacus** (*pausia*, a kind of olive), olive-green.

**pavoni'nus** (Lat., pertaining to a peacock), peacock-blue.

**pear-formed**, ~ **shaped**, obovoid or obconic with a tapering base.

**pearl-grey**, "pure grey, a little verging to blue" (Lindley).

**Pébrine'** (Fr.), a disease of silkworms caused by *Nosema Bombycis*, Naeg., a bacterial organism; it is also named GATTINE.

**Pec'tase** (πηκτός, coagulated), an enzyme which forms vegetable jelly from pectic substances occurring in the cell-wall.

**Pec'ten** (Lat., a comb) ‡ = STERIGMA.

**pec'tic** (πηκτός, coagulated), relating to pectin, as **pec'tic Ac'id**, supposed to form a large part of fruit-jelly; **Pec'tin**, or **Pec'tine**, a jelly-like substance in fruits; *cf.* PECTOSE; **pectina'ceous** (+ aceous); resembling pectin; gelatinous.

**pec'tinate**, *pectina'tus* (Lat., like a comb), pinnatifid with narrow segments set close like the teeth of a comb; **pec'tinatory**, applied by De Bary to two series of vascular bundles whose members alternate with each other as the teeth of two combs.

**Pec'tose** (πηκτός, coagulated), a substance allied to mucilage which occurs in unripe fruits (Frémy); **pecto'sic Ac'id**, is associated with pectic acid in fruit jelly; **Pectocel'luloses**, *cf.* CELLULOSE.

**peda'linerved**, etc. = PEDATINERVED, probably a misprint in Henslow's Dictionary.

**peda'lis** (Lat.), a foot long or high.

**ped'ate**, *peda'tus* (Lat., footed), in botany, palmately divided or parted with the lateral divisions two-cleft;

**ped'ately cleft** = PEDATIFID ; ~ **veined**, = PEDATINERVED ; **pedat'ifid**, *pedatif'idus* (*findo*, *fidi*, cleft), divided in a pedate manner nearly to the base ; **pedatiform'is** (*forma*, shape) = PEDATIFID ; **pedatilo'bus, pedatiloba'tus, pedatilo'bed** (λοβὸς, earlap), palmate, with supplementary lobes at the base ; **peda'tinerved**, *peda'tinervis* (*nervus*, a nerve), when the midrib stops short, and two strong lateral nerves proceed from its base, giving rise to others which extend only to the apex ; **pedatipar'tite**, *pedatiparti'tus* (*partitus*, divided), with pedate venation, and the lobes nearly free ; **pedat'isect**, *pedatisec'tus* (*sectus*, cut), pedately veined, the divisions nearly reaching the midrib.

**Ped'estal** (*pes*, *pedis*, a foot, *stela*, a column), the persistent base of a leaf which disarticulates from it, *cf.* PULVINUS.

**Ped'icel**, *Pedicel'lus* (*pediculus*, a small foot), (1) an ultimate flower-stalk, the support of a single flower ; (2) in Hydropterideae the sporophore ; **pedicel'late**, *pedicella'tus, pedicula'tus* ‡, borne on a pedicel ; **Ped'icle** = PEDICEL ; **Pedicel'lulus** (dim. of *pedicellus*), a filiform support to the ovary in certain Compositae ; **Pedic'ulus**, (1) = PEDICEL ; (2) the stalk of the apple and other fruits ; (3) the filament of an anther, as ~ **Anthe'rae.**

**pedif'erus** (*pes*, *pedis*, a foot, *fero*, I bear), furnished with a stalk or support (Henslow) ; **Pedi'lis**, the contracted upper portions of the calyx tube in such florets of Compositae as have a stipitate pappus ; **pedila'tus**, furnished with a PEDILIS ; **Pedun'cle**, *Pedunc'ulus*, the general term for the stalk of a flower, it may also bear a cluster of single flowers ; **peduncular'is**, relating to a peduncle or a modification, as *peduncular'es Cir'rhi*, tendrils proceeding from a peduncle ; **pedunc'ulate**, *peduncula'tus, pedunculo'sus*, furnished with a footstalk ; **pedunculea'nus**, with a modified state of the peduncle (Henslow).

**Peel**, the rind or skin of fruit ; Grew spells it " Pill."

**Peg**, an embryonic organ at the lower end of the hypocotyl of seedlings of *Cucumis*, *Gnetum*, etc., lasting till the cotyledons are withdrawn from the testa.

**pela'gian** = **pelag'ic** (πέλαγος, the sea), inhabiting the open ocean, as distinct from the shores.

**pel'ios** (πελιὸς), black, livid.

**Pel'licle**, *Pellic'ula* (Lat., a small skin), a delicate superficial membrane, epidermis ; **pellicular'is**, having the character of a pellicle ; **pelli'tus** (Lat., covered with skin), " skinned, deprived of skin or apparently so " (Lindley).

**pellu'cid**, *pellu'cidus* (Lat., transparent), wholly or partially transparent.

**pelog'enous** (πηλὸς, clay, γένος, offspring), applied by Thurmann to those rocks which yield a clayey detritus, and the plants which thrive thereon ; **peloph'ilous** (φιλέω, I love), Warming's variation of the same ; **pelopsam'mic** (ψάμμος, sand), yielding clay and sand ; **pelopsammog'enous**, giving rise to clayey sand (Thurmann).

**Pelor'ia** (πελώριος, monstrous), an irregular flower become regular by an exceptional development of complementary irregularities ; **irreg'ular** ~ by the symmetric multiplication of the irregular portions ; **reg'ular** ~ by the suppresssion of the irregular parts ; **Pelorisa'tion**, the process of conversion of a flower to a regular form, from its normal irregular form.

**Pel'ta** (Lat., a target), (1) the round shield-like apothecium of *Peltidea*, etc. ; (2) a bract attached by its middle, as in Peppers ; **pel'tafid** (*findo*, *fidi*, to cleave), when a peltate leaf is cut into segments ; **pel'tate**, *pelta'tus*, target-shaped, as a leaf attached by its lower surface to a stalk, instead of by its margin ;

**pelta'to-digita'tus**, a digitate leaf with the petiole much enlarged at the insertion of the leaflets; **peltid'eus**, **pel'tiform** (*forma*, shape), orbicular or buckler-shaped, as the apothecia of many Lichens or the caps of Agarics; **peltiner'ved**, *peltiner'vis*, *-vius* (*nervus*, a nerve), with ribs arranged as in a peltate leaf; **peltoi'deus** (εἶδος, resemblance) = PELTIDEUS.

**pel'viform**, *pelviform'is* (*pelvis*, a basin, *forma*, shape), basin-shaped, formed like a shallow cup.

**pen'cilled**, marked with fine distinct lines.

**pen'dent**, *pen'dens* (Lat.), hanging down from its support; **Pend'ent**, used by Grew for ANTHER.

**pen'dulous**, *pen'dulus* (Lat.), hanging, pendent; **penduli'nus** (Lat.), having the habit of being pendulous (De Candolle); **Penduliflor'ae** (*flos*, *floris*, a flower), Delpino's term for wind-fertilized pendulous flowers.

**penic'ellate**, an error for the next.

**penic'illate**, *penicilla'tus* (*penicillus*, a little brush), pencil-shaped; **penicil'liform**, *penicilliform'is* (*forma*, shape), shaped like an artist's pencil; **Penicil'lium**, a tuft of hairs.

**pen'nate**, *penna'tus* (Lat. winged) = PINNATE; **pennaticis'sus** (*cissus*, cut), with incisions of a leaf in a pinnate manner; **pennat'ifid**, *pennatif'idus* = PINNATIFID; **pen'niform** (*forma*, shape), with ribs as in a pinnate leaf, but the upper segments confluent at the apex, as in the date palm; **penniner'ved**, *penniner'vis* (*nervus*, a nerve); **pennive'nius** (*vena*, a vein), pinnately veined.

**pentacarpel'lary** (πέντε, five + CARPELLARY), having five carpels; **pentacam'arus** (+ CAMARUS), with five loculi; **Pentachae'nium** or **Pentake'nium** (+ ACHENIUM), having the structure of a cremocarp, but with five carpels instead of two; **pentacoc'cous**, *-cus* (+ COCCUS), with five cocci elastically splitting away from the main axis; **pentacy'clic** (κύκλος, a circle), a flower with five whorls of members, *cf.* PENTAMEROUS; **pentadac'tylous** (δάκτυλον, a finger), five-fingered, or with five finger-like divisions; **pentadel'phous**, *-phus* (ἀδελφός, a brother), with five fraternities or bundles of stamens; **pentag'onal** (γωνία, an angle), with five angles; **Pentagyn'ia** (γυνή, a woman), a Linnean order of plants having five pistils; **pentag'ynous**, with five pistils or styles; **Pentake'nium** = PENTACHAENIUM; **pentam'erous**, *-rus* (μέρος, a part), with parts in fives, as a corolla of five petals; **pentan'der** (ἀνήρ, ἀνδρός, a man), of five stamens; **Pentan'dria**, a Linnean class of plants possessing five stamens, the largest in that system; **pentan'drous**, five-stamened; **pentan'gular**, (+ ANGULAR) five-angled, pentagonal; **pentapet'alous**, *-lus* (πέταλον, a flower-leaf), with five petals; **pentaphylet'ic** (φυλή, a tribe), used of a hybrid which has five strains in its origin; **pentaphyl'lous**, *-lus* (φύλλον, a leaf), with five leaves; **pentap'terous**, *-rus* (πτέρον, a wing), five-winged; **pen'tarch** (ἀρχή, beginning), with five points of origin, applied to a stele; **pentarrhi'nus**, Henslow's emendation of **pentari'nus** (ἄρρην, male), Necker's term for PENTANDROUS; **pentasep'alous**, *-lus* (+ SEPALUM), having five sepals; **pentasper'mous** (σπέρμα, a seed), five-seeded; **pentast'ichous** (στίχος, a row), in five vertical ranks; **Pen'toses**, a name given to compounds resembling glucose, but having only five atoms of carbon in the molecule.

**Pep'o** (Lat., a pumpkin), **Pepon'ida** ‡; **Peponid'ium** ‡, a gourd fruit, a one-celled, many-seeded, inferior fruit, with parietal placentas and pulpy interior.

**Pep'sin** (πέψις, cooking, digestion), the digestive principle or peptic enzyme.

**pep'tic** (*πεπτικός*, promoting digestion) **Fer'ments**, those enzymes which convert proteids into peptones.

**Pep'tones** (*πεπτός*, cooked), albuminoids after being acted on by ferments, as Proteids, which are the final result of their action; they are present in germinating seeds; **peptoni'sing**, applied to enzymes so acting.

**per-**, in Latin compounds increases their force as *per-similis*, very like.

**Perapet'alum**, ‡ (*περί*, about + PETALUM), any appendage to a petal, a synonym of NECTARILYMA and PARAPETALUM; **Peraphyl'lum** (*φύλλον*, a leaf) = PARAPHYLLUM.

**percur'rent** (*percurrens*, running through), extending throughout the entire length.

**Perem'bryum** (*περί*, about, *ἔμβρυον*, an embryo), that part of a monocotyledonous embryo investing the plumule and radicle, not externally distinguishable.

**Perench'yma** (*πήρα*, a sack, *ἔγχυμα*, an infusion), cellular tissue containing starchy matter (Stormonth).

**peren'nate**, *peren'nans* (Lat.), **perenna'ting** = **peren'nial**, *peren'nis* (Lat.), lasting the whole year through; **Peren'nial**, is a plant which lasts several years, not perishing normally after once flowering and fruiting; ~ **Herb**, the above ground portion dies each year, the root persisting; ~ **Mon'ocarp**, applied by Möbius to such plants as *Agave americana*, Linn., which live long, but die after once flowering.

**per'fect**, *perfec'tus* (Lat., complete), (1) applied to a flower which is hermaphrodite; (2) of an organ which has all its constituent members.

**perfo'liate**, *perfolia'tus* (*per*, through, *folium*, a leaf), used when a stem apparently passes through a leaf, as in *Bupleurum perfoliatum*, Linn.

**per'forate**, *perfora'tus* (Lat., pierced), pierced through, or having translucent dots which look like little holes, as in *Hypericum perforatum* Linn.

**perfos'sus** (Lat., dug or pierced through), perfoliate.

**perfu'sus** (Lat., poured over), completely covered.

**pergame'neous**, *-neus* (*pergamena*, parchment), like parchment in texture; **pergamenta'ceous**, *-ceus* ( + aceous), resembling parchment.

**Perian'dra**, pl. (*περί*, about, *ἀνήρ*, *ἀνδρός*, a man), the bracts of the male inflorescence in Mosses; **perian'dricus** (*ἀνδρικός*, manly), used of a nectary when it is ranged round the stamens; **Per'ianth**, *Perian'thium* (*ἄνθος*, a flower), (1) the floral envelopes, calyx or corolla, or both; (2) in Hepaticae the inflated envelope surrounding the fertilised archegonium, the COLESULE or vaginule; **perian'theus**, **perianthia'nus**, relating to or possessing a perianth; **Perianthoma'nia** (*μανία*, madness), an abnormal multiplication of perianth segments; **periax'ial** (*ἄξων*, an axle) **Wood**, the so-called outer wood, as in the stems of Bignoniaceae.

**Periblaste'sis** ( + BLASTESIS), the envelopment of gonidia by surrounding tissue.

**Per'iblem** (*περίβλημα*, clothing), a layer of nascent cortex beneath the epidermis.

**pericalyc'ius** (*περί*, about + CALYX), = PERISTAMINEUS; **Pericam'bium** ( + CAMBIUM), thin walled cells of the central cylinder in contact with the inner face of the endodermis; the pericycle; **Per'icarp**, *Pericar'pium* (*καρπός*, fruit), (1) the wall of a fructified ovary; (2) applied also to the wall of the capsule in Mosses; (3) improperly used of the protective husks surrounding certain fruits; adj. **pericar'pic**, **pericar'pial**, *pericarpia'lis*; **pericen'tral** (*κέντρον*, a sharp point) **Cell** = AUXILIARY CELL; **Pericar'yoplasm** = PERIKARYOPLASM; **pericen'tricus**, applied to perigyn-

ous stamens arranged concentrically with the calyx; **Per'ichaeth** (Crozier) = PERICHAETIUM; **Perichae'tium** (*χαίτη*, a mane); (1) the involucre around the base of the seta in Mosses; (2) Hooker's name for the perianth in Hepaticae; **perichae'tial**, *perichaetia'lis*, relating to the same, as ~ **Bracts**, ~ **Leaves**, the organs composing the perichaetium itself in Mosses, and the involucre in Hepaticae; **Per'ichyle** (*χυλός*, juice), a plant whose water-storing tissue is between the epidermis and the chlorenchyma, as *Rhizophora*; **Per'icladium** (*κλάδος*, a branch), the sheathing base of a leaf when it surrounds the supporting branch; **pericli'nal** (*κλίνω*, I bend down), curved in the same direction as the surface or circumference; ~ **Planes**, planes which conform to the exterior; **Per'iclines**, periclinal walls; **Pericli'nium** (*κλίνη*, a bed), the involucre of the capitulum in Compositae; **Periclinoi'des**,‡ a false involucre formed of the scales of the receptacle in Compositae, surrounding the sides of an elevated receptacle at its summit, as in *Evax*; **Pericoc'cium**, that portion of the protoplasm which envelopes the nucleus; in Germ. Kerntasche (Hanstein); **Pericol'ium**‡ (*κολεός*, a sheath) = PERICHAETIUM; **pericorolla'tus** (+ COROLLA), used of a dicotyledonous plant with a gamopetalous perigynous corolla; **Per'icycle** (*κύκλος*, a circle), the outermost zone of cells of the stele immediately within the endodermis; **inter'nal** ~, Flot's term for the procambium retained on the inner side of the vascular bundle; **Per'iderm**, *Perider'ma*, *Perider'mis* (*δέρμα*, skin or hide), the outer bark or epiphloëm, at first restricted by Mohl to tough cork in distinction to the soft cork, now extended to the cork cambium and its products; phellogen; **Per'idesm** (*δέσμη*, a bundle), the layer of cells which surround each vascular bundle beneath the special endoderm in astelic stems (Van Tieghem); adj. **perides'mic.**

**Perid'iole**, *Perid'iolum*, pl. *Perid'iola* (dim. of PERIDIUM from *πηρίδιον*, a little pouch), (1) a chamber of the gleba forming a nest of spores, free or attached by a funicle within the peridium of the sporophore; (2) "a membrane by which the spores of some Algae are immediately covered" (Lindley); **Perid'inin**, one of the colouring matters found in the Peridieae, a group of Fungi; **Perid'ium**, a general expression for the outer enveloping coat of a sporophore upon which the spores develop within a cavity; ~ **exter'num**, the outer layer which opens in various ways and separates from the ~ **inter'num**, the inner layer directly enclosing the gleba; ~ **mitrifor'me**, "the receptacle of certain Fungals" (Lindley); adj. **perid'ial**; as ~ **Cells**, the outer cells of a peridium which are coherent.

**Perid'roma** (*περιδρομή*, a circuit), Necker's term for the rhachis of Ferns.

**Periench'yma** (*περί*, about, *ἔγχυμα*, an infusion), irregular cellular tissue, chiefly in glands and spheroidal masses (Henslow), *cf.* PERENCHYMA; **Perifor'ium** = PERIPHORIUM; **Perigloe'a** (*γλοῖος*, glue), the entire gelatinous investment of a Diatom (Buffham); **Per'igone**, *Perigo'nium* (*γονή*, offspring), (1) a synonym of PERIANTH; (2) the same of PERICHAETIUM; (3) the involucre of the male inflorescence in Bryophytes; adj. **perigo'nial**, as ~ **Leaves**, the perichaetial leaves (excluding Bryophytes); **perigonia'rius**, (1) with the character of a perigone; (2) double flowers, resulting from transformation or multiplication of the floral organs taking on the character of perianth segments; **Perigynan'da**, **Perigynan'dra**, *-drum* (*γυνή*, a

woman, *ἀνήρ, ἀνδρός*, a man), (1) the involucre of Compositae; ~ **commu'nis**, ~ **exte'rior**, the involucre, ~ **inte'rior**, the corolla of a composite floret; **Perigyn'ium**, (1) the hypogynous setae of sedges; (2) the flask or utricle of *Carex*; (3) any hypogynous disk; (4) the involucre of the female inflorescence in Bryophytes; **perig'ynous**, literally means round the ovary, used of organs adnate to the perianth, or adnate with the lower part of the pistil; **Perikar'yoplasm** (*κάρυον*, a nut, *πλάσμα*, moulded), a zone of granular protoplasm seen in *Cobaea scandens*, Cav., in the cytoplasm of the resting pollen mother-cell on its approaching division (A. A. Lawson); **perimedul'lary** (+ MEDULLARY) **Zone**, the peripheral region of the inner tissue outwardly bounded by the protoxylem; *cf.* CIRCUMMEDULLARY; **Perimel'itae** (*mel*, honey), having honey-glands placed in the lower portion of the perianth, as in certain Gentianaceae (Huxley); **Perimer'istem** (+ MERISTEM), consists of several layers of cells which at first divide in every direction, but subsequently divide tangentially in the external region (Guillaud); **Per'ine** (*περί*, about), the outermost layer of sculpturing on pollen; **perinectar'ial** (+ NECTARY), surrounding the nectarial area, as in certain Gentians (Huxley); **Perin'ium**, the outermost of the three coats of a Fern spore; the epispore.

**perin'teger** (Lat.), quite entire.

**Period'ic Move'ments**, used to express the opening and closing of flowers, the nyctitropic movements of leaves, etc., when occurring habitually and with some regularity.

**peripet'alous**, *-us* (*περί*, about, *πέταλον*, a flower-leaf), around the petals.

**periph'eral** (*περιφέρεια*, the circumference of a circle), surrounding; ~ **Tis'sue**, in roots, the piliferous layer, furnished with root hairs; **peripher'ic**, *peripher'icus*, pertaining to the circumference, as of an embryo coiled round the outside of the albumen; **peripher'ico-termina'lis**, belonging to the circumference and apex of a body, used of stems which grow both in length and breadth; **periphae'ricus**, peripheric, circumferential.

**Periphlo'ëm** (*περί*, about + PHLOEM), the phloëm-sheath or pericambium; **periphloëmat'ic**, applied to concentric bundles in Ferns; **Periphoran'thium** (*φορέω*, I carry, *ἄνθος*, a flower), the involucre of Compositae; **Periphor'ium**, a fleshy and elongated support to the ovary, with the corolla and stamens attached to it; Henslow spells it "Periforium"; **Per'iphragm** (*φράγμα*, an enclosure), the pericycle of the stem (Dangeard); **Per'iphylls, Periphyl'lia** ‡ (*φύλλον*, a leaf), the hypogynous scales or lodicules of grasses; **Periphyllog'eny** (*γένος*, race, offspring), bearing numerous leaflets round the edge of a leaf-blade (Weismann); **Periph'ysis** (*φύω*, I grow), a sterile capilliform hyphal branch, projecting from the wall of the pyrenocarp when there is no hymenium in the cavity (Fuisting); **Per'iplasm** (*πλάσμα*, moulded), protoplasm in the oogonium and the antheridium which does not share in the conjugation; *cf.* GONOPLASM; **Per'iplast** (*πλάστος*, moulded), a hyaline structure enveloping the cell-nucleus; **Peripod'ium** (*ποῦς, ποδός*, a foot), = PERICHAETIUM; **perip'terous**, *-rus* (*πτερόν*, a wing), *peripter'a'tus*, surrounded by a wing or border; **Periscy'phe** (*σκύφος*, a cup), Desvaux's word for PERICHAETIUM; **Per'isperm**, *Perisper'mium* (*σπέρμα*, a seed), (1) the ordinary albumen of a seed, restricted to that which is formed outside the

embryo sac; (2) the pericarp or even the integuments of a seed; **perisper'mic**, *perisper'micus*, **perisperma'tus**, (1) furnished with albumen; (2) "when the perisperm is reduced to a single lamina, or when the seed is not furnished with a true perisperm" (Henslow); **Perisporan'gium** (*σπορά*, a seed, *ἀγγεῖον*, a vessel), the indusium of Ferns, a membranous covering of the sorus; **Per'ispore**, *Perispor'ium*, *-rum*, (1) the membrane or case surrounding a spore; (2) the mother-cell of spores in Algae; (3) = PERIGYNIUM; **Peristach'yum** ‡ (*στάχυς*, a spike), the glume of grasses; **Peristamin'ia** (+ STAMEN), **Periste'mones** (*στήμων*, a filament), applied to petalous dicotyledons with perigynous stamens; **Per'istem** (*ἵστημι*, I stand), young cortex in a nascent condition; **Per'istome** *Perist'oma*, *Peristom'ium* (*στόμα*, a mouth), the fringe or its homologue round the orifice of a moss-capsule; **perist'omate**, *peristoma'tus*, *perist'omus*, provided with a peristome; **peristomat'ic**, *peristomat'icus*, when perigynous stamens are attached round the mouth of the calyx tube; **peristy'licus** (+ STYLUS), when epigynous stamens are inserted between the styles and limb of the calyx; **Perisy'phe** more correctly PERISCYPHE; **Per'ithece** = **Perithe'cium**, pl. **Perithe'cia** (*θήκη*, a case), (1), a case with a small opening containing asci, in Lichens; (2) in Fungi, a receptacle enclosing spores which are naked or in asci; **perithe'cioid** (*εἶδος*, like) **Glands**, those on the pitcher of *Nepenthes*, resembling the perithecium of a *Sphaeria* (Macfarlane); **perit'ropal**, **perit'ropous**, *-pus* (*τροπή*, a turning), used of a seed which is horizontal in the pericarp, or of a radicle which is directed to the side of a pericarp; **perixylemat'ic** (+ XYLEM), said of concentric bundles in the roots of *Acorus*, Juncaceae and Cyperaceae (Laux); **perixy'lic**, Van Tieghem's expression for MESARCH + EXARCH; **Perizo'nium** (*ζώνη*, a belt), the thin non-silicious membrane of a young auxospore.

**perlar'ius**, **perla'tus** (Late Lat., *perla*, a pearl), (1) shining with a pearly lustre; (2) furnished with rounded tubercular appendages (Henslow). NOTE: not to be confounded with *perlatus*, carried through, derived from *perfero*.

**per'manent**, *per'manens* (*permaneo*, I persist), persistent; ~ **Tis'sue**, fully formed tissue, as distinct from merismatic or generative tissue.

**Permeabil'ity** (*permeabilis*, that can be passed through), applied to protoplasm, etc., and further distinguished as EXTRAMEABILITY, and INTRAMEABILITY, the power of allowing the passage of certain substances out of or into its vacuoles respectively (Janse).

**Permuta'tion**, *Permuta'tio* (Lat., a changing), enlargement of the floral envelopes with abortion of the sexual organs (Penzig).

**permuta'tus** (Lat.), completely changed.

**Per'nio** (Lat., a chilblain), a local affection resembling an ulcer, caused by cold.

**Perocid'ium** ‡ (*περί*, about, *ὀγκίδιον*, a tubercle), Necker's term for PERICHAETIUM.

**per'onate**, *perona'tus* (Lat., leather booted), thickly covered with a woolly covering becoming mealy.

**Perovula'tae** (*per*, much or very, *ovulatus*, ovuled), otherwise SEMINATAE, Van Tieghem's terms for phanerogams furnished with true seeds.

**perpe'lic** (*per*, very, *πηλός*, clay), Thurmann's term for rocks which yield clay, pure and abundant, also the plants which thrive thereon; **perpsam'mic** (*ψάμμος*, sand), yielding an abundance of sandy detritus, with the flora thereon growing.

**perpendic'ular**, *perpendicula'ris* (Lat.), used of an organ with its direction

vertical, either (*a*) to the horizon, or (*b*) to its attachment ; ~ **Sys'tem**, = FIBRO-VASCULAR SYSTEM (Crozier).

**perpusil'lus** (Lat.), very small.

**persicic'olor** (*persicum*, a peach, *color*, colour), **persici'nus** (Lat.), peach-coloured, a rosy pink.

**persis'tent**, *persis'tens* (Lat., persevering), remaining till the part which bears it is wholly matured, as the leaves of evergreens ; **Persis'tence**, constancy, as ~ **of Varia'tion**, the variety or tendency to vary persisting.

**per'sonate**, *persona'tus* (Lat., masked), used for a bilabiate corolla having a prominent palate.

**Perspira'tion** (Crozier), see TRANSPIRATION.

**pertu'sate** = **pertuse'**, *pertu'sus* (Lat., perforated), having slits or holes.

**Pe'rula** (Lat., a little wallet), (1) the scale of a leaf-bud ; (2) Lindley also gives it as a projection in the flower of Orchids, the MENTUM ; (3) = PERITHECIUM ; **per'ulate**, *perula'tus*, furnished with protective scales.

**perval'var** (*per*, through, *valva*, a valve) **Ax'is**, the main longitudinal axis of a Diatom frustule, the line which forms the centre of the dividing plane, penetrates the cell-cavity in the epi- and hypothecal directions at equal distances from the enclosing walls, and unites the centres of the valves (O. Mueller).

**per'vious**, *per'vius* (Lat., passable), having an open passage-way.

**Pes, Ped'is** (Lat.), a foot, (1) used in such compounds as *longipes*, long-stalked ; (2) a foot of twelve inches measurement ; *cf.* FOOT.

**Pet'al**, *Pet'alum* (πέταλον, a flower-leaf), one of the leafy expansions in the floral whorl styled the Corolla ; the word was taken by Blair from Columna ; ~ **-like**, ~ **-shaped**, petaloid ; **petala'tus**, possessing petals or a corolla ; **Petalifica'tion** (*facio*, I make) = PETALODY ; **petalif'erous**, bearing petals ; **pet'aliform**, *petaliform'is* (*forma*, shape), petal-shaped ; **pet'aline**, *petali'nus*, petal-like, or relating to petals ; **Pet'alode** (εἶδος, resemblance), an organ simulating a petal ; **petalo'deus** (Lat.), (1) = PETALODY ; (2) having petals ; **Petalo'dy**, the metamorphosis of stamens or other organs into petals ; **pet'aloid**, *petaloi'deus*, like a petal, or having a floral envelope resembling petals ; ~ **An'ther**, an anther borne on a petal, the filament resembling a petal ; **Petaloma'nia** (μανία, madness), an abnormal multiplication of petals ; **Petaloste'mones** (στήμων, a filament), plants with flowers whose stamens are adherent to the corolla ; **pet'alous**, Blair's term for having petals.

**petiola'ceus** (*petiolus*, a little foot or leg + *aceus*) (Lat.), having reference to the petiole by attachment, transformation, or appearance ; **petiola'neus** or **petiolea'nus** (Mod. Lat.), consisting of the petiole or of some modification of it ; **pet'iolar**, *petio'laris*, **pet'iolary**, borne on, or pertaining to a petiole ; **pe't'iolate**, *petiola'tus*, having a petiole ; **Pet'iole**, *Pet'iolus*, the footstalk of a leaf ; **Pet'iolule**, *Petiol'ulus*, (1) a small petiole ; (2) the petiole of a leaflet ; **petiol'ulate**, *petiolula'tus*, having a petiolule ; **petiol'ular**, *petiolula'ris*, belonging to a petiolule.

**petrae'us** (Lat.), growing amongst rocks ; **petro'sus** (Lat., rocky), growing amongst stones.

**Pezizaxan'thine** (+ XANTHIN), a special orange-colouring matter, also termed **Pezi'zin**, Rosoll's name for the same pigment in *Peziza aurantia*, Pers., etc. ; **pezi'zoid** (εἶδος, resemblance), peziza-, or cup-shaped.

**phaenic'eus** = PHOENICEUS.

**phaenocar'pous** *-pus* (φαίνω, I appear, καρπός, fruit), having a distinct fruit, with no adhesion to surrounding parts ; **phaenog'amous**

(*γάμος*, marriage), having manifest flowers, phanerogamous; **Phae'nogams** = PHANEROGAMS; **Phaenol'ogy** = PHENOLOGY.

**Phae'ocyst** (*φαιὸς*, brown, swarthy, *κύστις*, a bag), Decaisne's name for the cell-nucleus; **phaeophy'cean** (*φῦκος*, a sea weed), relating to the Phaeosporeae, a group of olive or brown marine Algae; **Phae'ophyll** (*φύλλον*, a leaf), the colouring matter in the living active chromatophores of brown seaweeds (Reinke); **Phae'oplast** (*πλάστος*, moulded), the special name for the chromatophores of Fucoideae (Schimper); **Phae'ospore** (*σπορὰ*, a seed), a member of the brown Algae; adj. **phaeos'porous**; **phae'us** (Lat.), fuscous, swarthy.

**Phai'ophyll** (*φαιὸς*, brown, *φύλλον*, a leaf), a group of colouring matters in the leaves of plants of various tints of brown.

**Phalan'ges**, sing. **Phal'anx** (*φάλαγξ*, a band of soldiers), bundles of stamens in diadelphous and polyadelphous flowers; **phalarsiph'ytus** (*ἄρρην*, male, *φυτὸν*, a plant), polyadelphous.

**Phal'line**, a poisonous substance from various species of *Amanita*; **Phal'lus**, "the peridium of certain Fungals" (Lindley); the name is immediately derived from *Phallus impudicus*, Linn., the Stinkhorn Fungus, now referred to *Ithyphallus*.

**Phan'eri**, pl. (*φανερὸς*, manifest), any organisms which are visible under the microscope without the use of reagents (Maggi); **phaneran'thus** (*ἄνθος*, a flower), where the flower is manifest; **phaneranthe'rus** (*ἀνθηρὸς*, flowery), when the anthers protrude beyond the perianth; **phanerogam'ic**, **phanerog'amous**, *phanerog'amus* (*γάμος*, marriage), having manifest flowers; **phanerogam'ian**, pertaining to **Phan'erogams**, plants with flowers in which stamens and pistils are distinctly developed; **phanerop'orous** (*πόρος*, a way or passage), applied to stomata which lie in the same plane as the epidermis.

**Phel'lem** (*φελλὸς*, cork) = cork (Crozier); **Phelle'ma**, the outermost layer of the periderm, consisting of true cork and phelloid (von Hoehnel); **Phel'loderm** (*δέρμα*, skin), the innermost layer of the periderm; **Phel'logen** (*γεννάω*, I produce), the central layer of the three in the periderm, the active cork-producing tissue; adj. **phellogenet'ic**; **phel'loid** (*εἶδος*, resemblance), cork-like, as tissue which approaches cork in its quality; **Phel'loid**, non-suberized layers in the Phellema (von Hoehnel).

**Phe'nogam** = PHANEROGAM; adj. **phenogam'ian**, **phenogam'ic**, etc. = PHANEROGAMIAN, PHANEROGAMIC, etc.

**Phenol'ogy**, abbreviated from **Phenomenol'ogy** (*φαινομενὸν*, an appearance, *λόγος*, discourse), recording the periodical phenomena of plants, as leafing, flowering, etc.; adj. **phenolog'ical**, as ~ **Inver'sions**, an abnormal inversion of the relative blossoming of plants, caused by meteorologic conditions (Rahn).

**Phillile'sia** (*φύλλον*, a leaf, *ἐλίσσω*, I wind), a name propounded by Re and adopted by Berkeley for "leaf-curl or blister"; *cf.* PHYLLILESIA.

**Phil'otherm** (*φιλέω*, I love, *θέρμη*, warmth), used by Baker for plants which need warmth to complete their life-cycle.

**phleboi'dal** (*φλὲψ*, *φλεβὸς*, a vein), has been applied to spiral, annular, or porous moniliform vessels (Cooke); **Phebomor'pha** (*μορφὴ*, form), the mycelium of some Fungi.

**Phlobaph'enes**, pl. (*φλοιὸς*, bark, *βαφὴ*, a dyeing), amorphous brown colouring matters of the bark; **phloeo'des** (*εἶδος*, resemblance), bark-like in appearance; **Phlo'ëm**, Naegeli's term for the bast elements of a vascular bundle; it is separated in

exogens from the wood (xylem) by the cambium; ~ **I'slands**, groups of bast-strands surrounded by xylem (Chodat); ~ **Ray**, a ray or plate of phloëm between two medullary rays; ~ **Sheath**, a layer of thin-walled cells surrounding the vascular tissue next within the cortex, best seen in roots; **Phloëoter'ma** (*τέρμα*, a limit), the innermost layer of primary cortex; **Phloe'um** ‡, the cortical tissues; **Phlorid'zin** (*ῥίζα*, a root), a white crystalline substance which gives the bitter astringency to the root-bark of the apple, pear, cherry and plum-trees; **Phloroglu'cin**, a body of frequent occurrence in the bark of trees, derived from glucosides.

**phoenic'eous**, *phoenic'eus* (Late Lat.), scarlet; red with a little of yellow added.

**phoeos'porous** = PHAEOSPOROUS.

**Phoran'thium** (*φορός*, bearing, *ἄνθος*, a flower), the receptacle of the capitulum in Compositae.

**photeol'ic** (*φῶς*, *φωτός*, light, *αἰόλος*, moving, motile), used of the sleep of plants; **pho'tic**, exposed to light, well-illuminated, as the margins of pools, etc.; **Photo-aesthe'sia** (*ἄισθησις*, perception), Csapek's term to express the power of an organ to respond to the stimulus of light; **Photo'bia** (*βίος*, life), pl., Tulasne's term for ectoparasitic Fungi; **photocleistogam'ic** (+ CLEISTOGAMIC), used of flowers which do not open in consequence of the rapid growth of the outer side of the petals, due to PHOTOHYPONASTY (Hansgirg); **Photoepinas'ty** (+ EPINASTY), epinasty induced by the action of light (Detmer); **photogen'ic** (*γεννάω*, I produce), used of bacteria which are luminous; **Photohyponas'ty** (+ HYPONASTY), hyponasty caused by the effect of light (Vines); **photokine'tic** (*κινητικός*, having the power of movement), moving in consequence of the stimulus of light; **photomet'ric** (*μέτρον*, a measure), (1) applied to organisms which turn either end to the direction of the light-rays; (2) leaves which assume a definite position in light, to obtain the most of it, or to screen themselves from too much (Wiesner); **Photol'ysis** (*λύσις*, a loosing), the arrangement of chlorophyll granules under the stimulus of light, including both apostrophe and epistrophe; **Photomorph'osis** (*μόρφωσις*, configuration), that kind of mechanomorphosis which depends upon light as the cause; **Photosyn'tax** (*συντάξω*, I put together), the formation of complex carbon compounds from simple ones under the influence of light (Barnes); **Photosyn'thesis** (*σύνθεσις*, a putting together), a proposed emendation of "photosyntax"; **phototac'tic** (*τακτικός*, qualified to arrange in order), Strasburger's term for taking up a definite position with regard to the direction of light-rays; **phototon'ic** (*τόνος*, tension), the increasing irritability by the influence of light; **Photot'onus**, the normal mobile condition resulting from the alternation of day and night; **Phototax'is** (*τάξις*, order), the definite self-arrangement of organisms under the stimulus of light; **Photot'rophy** (*τροφή*, food), unequal increase on one side of an organ, due to the incidence of light in relation to the parent shoot (Oltmanns); **Photot'ropism** (*τροπή*, a turning), a synonym of HELIOTROPISM; **Pho'trum**, S. L. Moore's term for the whole scale of illumination affecting PHOTOLYSIS.

**Phrag'ma**, pl. **Phrag'mata** (*φράγμα*, an enclosure), a spurious dissepiment in fruits; **phrag'mifer** (*fero*, I bear), **phrag'miger**, *phragmig'erus* (*gero*, I bear), divided by partitions; **Phragmobas'id**, *Phragmobasid'ia*, pl. (+ BASID), septate basidia in Basidiomycetes (Van Tieghem).

**Phragmite'tum**, Warming's term for an association of reeds, *Phragmites*.

**Phry'gana**, pl. (*φρύγανα*, sticks for firewood), an old term for prickly and stiff under-shrubs.

**Phthiri'asis** (*φθειρίασις*, lousy disease), disease produced by aphides or plant-lice.

**Phycobry'a** (*φῦκος*, sea-weed, *βρύον*, moss), a term proposed for Characeae; **Phycocecid'ia** (*κηκίς*, a gall), galls due to the attack of Algae (Lundström); **Phy'cochrome** (*χρῶμα*, colour), the colouring matter of brown Algae, etc.; adj. **phycochroma'ceous** (+ aceous); **Phycocy'anin** (*κύανος*, blue), the blue colouring matter in Algae; **Phycodoma'tia** (*δωμάτιον*, a little house), plant shelters inhabited by other plants (Lundström); **Phycoer'ythrine** (*ἐρυθρός*, red), the red pigment of Floridean Algae; **Phycohae'matin** (*αἷμα*, blood), a special red colouring matter in certain Algae, such *Rhytiphloea tinctoria*, Agardh; **Phycol'ogist** (*λόγος*, a discourse), a student or expert in the study of Algae; **Phycol'ogy**, the department of botany which includes Algae; **Phy'coma**, the entire mass of an Alga; the thallus and reproductive bodies; **Phycoma'ter** (*μάτηρ*, Doric for mother), the hymeneal jelly in which some spores germinate; **Phycomyce'tes** (*μύκης*, a fungus), a group of Fungi which approach the Algae in some characters; **Phycophae'ine** (*φαιός*, brown), the brown colouring matter of Algae; **Phycoporph'yrin** (*πορφύρα*, purple), a purple pigment from several species of *Zygnema* (Lagerheim); **Phycopyr'rhine** (*πυρρός*, dark red), a pigment occurring in the Peridineae; **Phycoste'mones** ‡ (*στήμων*, a filament), "hypogynous or other scales adhering to the disk" (Lindley); **Phycoxan'thine** (+ Xanthin), the yellowish brown pigment of Algae.

**Phygoblaste'ma** (*φυγάς*, a fugitive, *βλάστημα*, a sprout), Minks's term for a modified form of soredia in Lichens.

**Phykench'yma** (*φῦκος*, sea-weed, *ἔγχυμα*, an infusion), "the elementary tissue of Algals" (Lindley); **Phy'kocyan** = Phycocyanin; **Phykoer'ythrin** = Phycoerythrine.

**Phy'la**, pl. of **Phy'lum** (*φῦλον*, a tribe), a system of organisms arranged in the assumed succession of development; adj. **phylet'ic.**

**Phyl'la**, pl. (*φύλλον*, a leaf), the verticillate leaves which form the calyx; used in composition as di-phyllous, two-leaved, etc.; **Phyl'lade**, a cataphyllary leaf; **Phyl'lary**, *Phylla'ris*, a member of the involucre of a Composite flower; **Phyllid'ium**, term proposed by Bower for the homologue of the leaf in the gametophyte; **Phyllile'sia**, the correct spelling of Phillilesia; **Phyl'lite**, a fossilized leaf; **Phylloblas'tus** (*βλάστος*, a bud), Koerber's term for Lichens which have a flat leaf-like expansion of the thallus; **Phyllobry'on** ‡ (*βρύον*, a moss), the contracted pedicel of an ovary, as in some peppers (Lindley); **Phyl'loclade**, *Phylloclad'ium* (*κλάδος*, a branch), a flattened branch assuming the form and function of foliage; **Phyllocol'ly** (*κόλλα*, glue), the production of new leaflets from the leaf surface (Penzig); **Phyllocy'anin** (*κύανος*, blue), a blue pigment occurring in chlorophyll, which when combined with phylloxanthin produces a green tint, *cf.* Kyanophyll; **phyllodin'eous**, *-eus*, relating to phyllodes; **Phyl'lode**, *Phyllo'dium*, a petiole taking on the form and functions of a leaf; **Phyllo'dy**, the metamorphosis of floral organs into leaves; **phyl'loid** (*εἶδος*, resemblance), leaf-like; ~ **Clad'ode** = Phylloclade; **Phyl'loid**, a leaf-like appendage to the stems of Algae; **phylloi'deus**, foliaceous; **Phyl'logen** (*γεννάω*, I produce) = Phyllophor; **phyllogenet'ic**, leaf-producing; **phyllog'enous**, growing upon leaves; epiphyllous; **Phyllolob'eae**, pl. (*λοβός*, a lobe), plants with coty-

ledons, green and leaf-like; **Phylloma'nia** (*μανία*, madness), an abnormal production of leaves; **Phyl'lome**, *Phyllo'ma*, (1) an assemblage of leaves, or of incipient leaves in a bud; (2) recently used for the leaf organ in a generic sense, potentially that which answers to a leaf, *cf.* CAULOME; **epipel'tate** ~, when the base of the expansion results from the growth of the upper surface of the primordial leaf, as in *Cotyledon Umbilicus*, Linn., and *Tropaeolum majus*, Linn.; **hypopel'tate** ~, when the growth is from the under surface, as in the sepals of *Viola* (C. de Candolle); **Phyllomor'phy** (*μορφή* form) = PHYLLODY; **Phylloph'agist** (*φάγω*, I eat), term proposed by Boulger, for plants which derive their sustenance by their leaves; **Phyl'lophor**, **Phyl'lophore**, *Phylloph'orum* (*φορέω*, I carry), the budding summit of a stem on which leaves are developing, especially applied to palms; **phylloph'orous**, producing leaves; **Phyl'lophyte** (*φυτόν*, a plant) (1) = CORMOPHYTE; (2) a plant which draws its nourishment chiefly from its leaves (Boulger); **Phyllop'odes**, pl. (*ποῦς*, *ποδός*, a foot), dead leaves in *Isoëtes*; **Phyllopod'ium**, a leaf regarded morphologically as an axis, branched or unbranched; **Phyllopto'sis** (*πτώσις*, fall), an unnatural fall of leaves; **Phyl'lorhize** (*ῥίζα*, a root), an organ intermediate between leaf and root, as the capillary leaves of many water plants (Clos); **phyllosipho'nic** (*σίφων*, a tube), having a tubular stele, interrupted at the insertion of leaves (Jeffrey); **Phyllosi'phony**, the state described; **Phyllota'onin** (*ταώς*, a peacock), Schunk's word for a product of chlorophyll, resembling phyllocyan, but dull green in tint; **Phyllotax'y**, *Phyllotax'is* (*τάξις*, arrangement), the mode in which the leaves are arranged with regard to the axis; adj. **phyllotac'tic**; **Phylloxan'thin** (+ XANTHIN), the yellow colouring matter of leaves, xanthophyll; **Phyl'lula** (*οὐλα*, a scar) ‡, the scar left on a branch by the fall of a leaf.

**Phylog'eny** (*φῦλον*, a tribe, *γένος*, lineage), ancestral history deduced from development; adj. **phylogenet'ic**.

**phymato'deus** (*φῦμα*, a growth or tumour, *εἶδος*, likeness), warted, verrucose.

**Physe'ma** (*φύσημα*, an inflation), (1) the frond of an aquatic Alga; (2) a branch of *Chara* (Lindley).

**physiolog'ic** (*φύσις*, a natural production, *λόγος*, discourse), relating to physiology; **Physiol'ogy** (**veg'etable**), the science of the vital actions or functions of plants and their parts.

**Physo'des** (*φῦσα*, a bladder, *εἶδος*, likeness), vesicles in Algae filled with liquid containing structures, formerly called "microsomes" (Crato).

**Phytal'bumose** (*φύτον*, a plant, + ALBUMOSE), a proteid found in seeds, as of *Abrus*; **Phytobiol'ogy** (*βίος*, life, *λόγος*, discourse), the study of the vital functions in plants; **Phy'toblast** (*βλαστός*, a bud or sprout), Baillon's term for a cell in its first stage of development; **Phytocecid'ia** (*κηκίς*, or *κηκίδιον*, a gall), galls produced by other plants (Lundström); **Phy'tochemy** (+ chem), the chemistry of vegetation and its products; **Phy'tochlore** (*χλωρός*, green) = CHLOROPHYLL; **Phy'tocyst** (*κύστις*, a bag), Baillon's expression for a cell with its walls, *cf.* PHYTOBLAST; **Phytoder'ma** (*δέρμα*, a skin), any fungous parasite growing on the skin; **Phytoderm'ata**, pl., skin diseases caused by Fungi; **Phytodoma'tia**, pl. (*δωμάτιον*, a little house), shelters in which other plants live (Lundström); **Phytoërо'sia**, a misprint of Lindley's for PHYTOTEROSIA; **Phytodynam'ics** (*δύναμις*, power), relating to the movements of plants (Sachs); **Phytogel'in** (*gelo*,

I congeal), the gelatine of Algae; **Phytogen'esis** (*γένεσις*, beginning), the origin and development of the plant; **Phytog'eny**, means the same as the last; **Phytogeog'raphy**, *Phytogeograph'ia* (*γῆ*, the earth, *γράφω*, I write), geographic botany, the science of plant distribution; **Phytogno'sis** (*γνῶσις*, knowledge), botany, phytology; **Phytog'raphist** (*γραφή*, a writing), a describing botanist; **Phytog'raphy**, the description and illustration of plants, descriptive and systematic or taxinomic botany; **phy'toid** (*εἶδος*, likeness), plant-like; **Phy'tolite** (*λίθος*, a stone); **Phy'tolith**, a plant in the fossil condition; **Phytolithol'ogy**, (*λόγος*, discourse), the study of fossil-plants, palaeobotany; **Phytol'ogist**, a botanist; **Phytol'ogy**, *Phytolo'gia*, botany, the study of plants; **Phytol'ysis** (*λύσις*, a loosing), an error (?) for PHOTOLYSIS; **phytomastig'opod**, see MASTIGOPOD; **Phy'tomer**, pl. **Phytom'era** (*μέρος*, a part), the unit of a plant, an internode with its leaves, an emendation of **Phy'ton**, applied by Gaudichaud to a plant-unit, out of a succession of which plants are built up; **Phyton'omy**, *Phytonom'ia* (*νόμος*, law), botanic physiology; **Phytonym'ia** (*ὄνομα*, a name), plant organography; **Phytoplank'ton** (+ PLANKTON), floating pelagic plant organisms; **Phytopathol'ogy** (*παθολογικός*, relating to diseases), vegetable pathology, the science of plant-diseases; **Phytopol'itus** ‡ (*πολίτης*, a citizen), a plant which is or seems to be parasitic; **Phytoptocecid'ia** (*κήκις*, a gall), galls caused by Fungi (Loew); **Phytostat'ics** (*στάσις*, a standing), the various causes which tend to produce equilibrium in the energies of a plant; **Phytotero'sia** (*τερέω*, I pierce), Desvaux's term for plant pathology; **Phytoteratol'ogy** (+ TERATOLOGY), the study of monstrous growths in plants; **Phytot'omy** (*τομή*, a cutting), plant anatomy, or histology; **Phytotroph'ia** (*τροφή*, nourishment), plant culture; **Phytozo'id** (*ζῷον*, an animal, *εἶδος*, likeness) = ANTHEROZOID; **Phytozo'a**, pl. of **Phytozo'on**, antherozoids, mobile fertilizing bodies formed in antheridia.

**pic'eus** (Lat.), pitchy black.

**Pic'ro-er'ythrin** (*πικρός*, bitter, + ERYTHRIN), a substance found in Lichens; **Picrotox'in** (*τοξικόν*, poison), a crystalline narcotic bitter ingredient in the berries of *Cocculus indicus*, the mediæval and trade name of *Anamirta paniculata*, Coleb.; adj. **picrotox'ic**.

**pic'tus** (Lat., painted), adorned with colour, as though painted.

**Pie'tra funga'ia** (Ital.), "Mushroom-stone," the sclerotium of *Polyporus tuberaster*, Fr.

**pila'ris** ‡ (Lat., from *pilus*, a hair), composed of small hairs, pilose.

**pi'leate**, *pilea'tus* (Lat., wearing the *pileus*), having the form of a cap or PILEUS; **pi'leiform**, *pileiform'is* (*forma*, shape), pileus shaped, **Pi'leola**, *Pile'olus* (*pileolum*, a little cap), (1) a small cap or cap-like body; defined by Henslow as a primordial leaf like an extinguisher, which encloses the bud; (2) the diminutive of PILEUS; (3) "the receptacle of certain Fungals" (Lindley).

**Pileorhi'za** (*πίλεος*, *pileus*, a cap, *ῥίζα*, a root), the root-cap, a hood at the extremity of the root; **Pi'leus**, (1) a convex expansion terminating the stipe of Agarics, and bearing the hymenium, now extended to all sporophores in which the hymenium faces the ground, the CAP; (2) used by R. T. Lowe to express the habit of *Convolvulus Caput-Medusae*, Lowe.

**Pi'li**, pl. of **Pi'lus** (Lat. a hair), hairs.

**Pilid'ium** (*πιλίδιον*, a night-cap), an orbicular hemispherical shield in Lichens, the outside changing into a powdery substance, as in *Calicium*.

**pilif'erous**, *-rus* (*pilus*, a hair, *fero*, I bear), (1) bearing hairs, or tipped with them; (2) hair-pointed (Lindley); ~ **Lay'er**, the young superficial tissue of roots, producing the root-hairs, when present; **pi'liform** (*forma*, shape), applied to the point of a nerve in Mosses, when like a long flexuose hair; **pilig'erous** (*gero*, I bear), bearing hairs.

**Pill**, Grew's spelling of PEEL.

**pi'locar'pine**, the active principle of *Pilocarpus*, a genus of Rutaceae.

**pil'o-glan'dulose** (*pilus*, a hair), used by J. Smith for Ferns bearing glandular hairs; **pi'lose**, *pilo'sus*, **pi'lous**, hairy, any kind of pilosity, usually meaning having soft and distinct hairs; **Pilos'ity**, *Pilos'itas*, hairiness; **pilosius'culus** (Lat.), slightly hairy; **Pi'losism**, abnormal hairiness in plants; **deform'ing** ~, when in excess and completely disfiguring the species; **physiolog'ical** ~, occasioned by circumstances, as growth in a dry soil; **teratolog'ical** ~, when it becomes a disease, *cf.* DEFORMING.

**Pil'ula** ‡ (Lat., a globule), (1) a cone like a galbulus; (2) any spherical inflorescence.

**Pi'lus** (Lat.), a hair; *cf.* PILL.

**pim'pled**, papillose.

**pin-eyed**, a florist's term for those flowers of dimorphic species, which have long styles, the stigma showing itself at the mouth of the corolla-tube.

**Pinakench'yma** (*πίναξ*, a table, *ἔγχυμα*, an infusion), the muriform tissue of medullary rays, whose component cells are tabular; **Pinench'yma** is a shortened form.

**Pinch'ing-Bod'ies**, the CORPUSCULA of Asclepiads; the junction of the pollinia which clings to the leg of an insect visitor; ~ **Traps**, another name for the same mechanism; the German equivalents are Klemmkörper and Klemmenfallen.

**Pine'tum** (Lat., a pine-grove), (1) a work devoted to Coniferae; (2) a collection of the same in a garden.

**Pi'nite**, a glucoside, sweet and crystalline, derived from *Pinus Lambertiana*, Dougl.

**Pin'na**, pl. **Pin'nae** (Lat. a feather), a primary division of a pinnate leaf, its leaflets, which sometimes themselves are pinnate, are restricted by Bower to the "branches of the first order borne upon the phyllopodium," the axis of the leaf; **pin'nate**, *pinna'tus*, with leaflets arranged along each side of a common petiole; ~ with an odd one = **impari-pinnate**; **pinna'tely**, in a pinnate fashion, as ~ **com'pound**, ~ **cleft**, ~ **decom'pound**, ~ **divi'ded**, ~ **lo'bed**, ~ **par'ted**, ~ **ter'nate**, ~ **trifo'liolate**, ~ **veined**; **pinna'tifid**, *pinnatif'idus* (*findo*, *fidi*, to cut), pinnately cleft; **pinnatilo'bate**, *pinnatiloba'tus*, *pinnatilo'bus* (*lobus*, a lobe), pinnately lobed; **pinnatipar'tite**, *pinnatiparti'tus*, pinnately parted; **pinnatiscis'sus**, (*scissus*, cleft), pinnately divided or cut; **pinna'tisect**, *pinnatisec'tus* (*sectus*, cut), pinnately divided down to the rhachis; **pin'niform** (*forma*, shape), like a feather; **pinniner'ved** (*nervus*, a nerve), pinnately veined, the veins running parallel towards the margin; **pin'nulate**, with pinnules; **Pin'nule**, *Pin'nula*, pl. *Pin'nulae*, (1) a secondary pinna; (2) in Diatoms, thickened ribs on the valves, as in *Pinnularia*.

**pi'noid** (*pinus*, a pine, *εἶδος*, resemblance), like a pine-needle.

**Pip**, (1) the popular name for the seeds of an apple or pear; (2) "small seeds or seed-like bodies including the bulbs of Lily of the Valley" (Crozier); (3) a florist's term for a single flower of a truss.

**Pip'erin**, the active principle of white and black pepper, *Piper nigrum*, Linn., a white crystalline body isomeric with morphine; **pip'eratus**, **piperi'tus** (Lat., peppered), peppery, having a hot, biting taste.

**pi'siform**, *pisiform'is* (*pisum*, a pea, *forma*, shape), pea-shaped.

**Pis'til,** *Pistil'lum* (Lat., a pestle), (1) the female organ of a flower, consisting of ovary, style and stigma, when complete; (2) the archegonium of the genus *Andreaea* (Hooker and Taylor); **pistilla'ceous** ( + aceous), growing on the pistil; **pis'tillary,** relating to the pistil; ~ **Cord,** "a channel which passes from the stigma through the style into the ovary" (Lindley); **pis'tillate,** *pistilla'tus,* (1) having a pistil; (2) applied to a flower having pistils only, a female flower; **pistillif'erous,** *-rus* (*fero,* I bear), bearing pistils; **Pistillid'ium,** pl. **Pistillid'ia,** archegonia, organs analogous to pistils; **pistillig'erous** (*gero,* I bear), **pistillif'erous** (*fero,* I bear), bearing one or more pistils; **Pistillo'dy,** the change of floral organs into carpels.

**Pit,** (1) a small hollow or depression, as in a cell-wall; (2) the endocarp of a drupe containing the kernel or seed-stone (Crozier); ~ **Cham'ber,** the cavity of a bordered pit on each side of a closing membrane.

**Pitch,** a resinous exudation from the spruce, *Picea alba,* Link, etc.

**Pitch'er,** a tubular or cup-shaped vessel, the terminal portion of a leaf-blade, usually containing a secreted digestive fluid; an ascidium; ~ **shaped,** campanulate, but contracted at the orifice.

**Pith,** the spongy centre of an exogenous stem, chiefly consisting of parenchyma; the medulla; ~ **Flecks,** dark marks in timber due to the cavities made by the larvae of insects in the cambium, but at once filled up by cellular tissue (Hartig).

**pit'ted,** marked with small depressions, punctate; used in a restricted sense for pits in cell-walls; ~ **Ves'sels,** dotted ducts, vessels with secondary thickenings leaving thinner spots.

**pitu'itous** (*pituita,* phlegm), relating to mucus (Crozier).

**Pityri'asis** (*πίτυρον,* scurf) **versic'olor,** a skin disease caused by *Microsporon Furfur,* Rob.

**Placen'ta** (Lat., a cake), (1) the organ which bears the ovules in an ovary, often the margin of the carpellary leaves; (2) in Cryptogams, the tissue from which sporangia arise; ~ **shaped,** placentiform; **Pla'centary,** ‡ a placenta which is long and narrow and bears many ovules; **Placenta'rium,** placenta; **Placenta'tion,** *Placenta'tio,* the disposition of the placentae; **placentif'erus** (*fero,* I bear), bearing placentae; **placen'tiform,** *placentiform'is* (*forma,* shape), quoit-shaped or like a flat cake.

**placochromat'ic** (*πλάξ, πλάκος,* a flat body, *χρωματικός,* relating to colour), used of Diatoms with endochrome in plates or disks; *cf.* COCCOCHROMATIC.

**placo'des** (*πλακώδης,* flat), used by Koerber for Lichens resembling a rounded plate in figure.

**Plac'ophytes** (*πλάξ,* a flat body, *φυτόν,* a plant), a term applied by Schuett to the Peridineae, Diatomaceae and Desmideae; *cf.* SAC'COPHYTES.

**plagiod'romous** (*πλάγιος,* oblique, *δρόμος,* a course), applied to tertiary leaf-veins when at right-angles to the secondary veins; **Plagiophototax'y** (*φῶς, φωτός,* light, *τάξις,* order), the oblique arrangement of chlorophyll granules with regard to incident light (Oltmanns); **plagiophototrop'ic** (*τροπή,* a turning), assuming an oblique position to the rays of light, as the leaflets of *Robinia, Tropaeolum,* etc., (Oltmanns); **plagiotrop'ic,** having the direction of growth oblique or horizontal; **Plagiot'ropism,** the condition described.

**plain,** applied to a margin which is not undulate, though it may be sinuate (Crozier).

**plait'ed,** plicate.

**plane,** *pla'nus* (Lat.), level, even, flat; **Plane of Inser'tion,** a plane which passes through the point of insertion of a lateral organ and coincides with the main axis and that of the organ; ~ **of Sym'metry,** that which

divides an object into symmetrical halves; **planius'culus** (Lat.), nearly flat.

**Planktol'ogy** (*πλαγκτὸς*, wandering, *λόγος*, a discourse), the department of pelagic botany, that is, of the floating organisms in the ocean; **Plank'ton**, free-swimming or floating oceanic life; **fresh'water ~**, that of lakes or rivers; **nerit'ic ~**, found near the coast; **ocean'ic ~**, pelagic, far from land.

**Plan'ogamete** (*πλάνος*, wandering, *γαμέτης*, a spouse), a mobile ciliated gamete or zoogamete, as in Chlorophyceae; **Plan'ospore** (*σπορά*, a seed), Sauvageau's term for a motile zoospore.

**Plant**, *Plan'ta*, a vegetable production nourished by gases or liquids and not ingesting solid particles of food (except in the plasmodial stage of Myxogastres); **~ Cane**, the first year's growth of the sugar-cane from seed; **~ Cas'ein**, a substance akin to animal casein; **~ Forma'tion**, an assemblage of plants living together in a community under the same environment, as a moor or wood; **~ Pathol'ogy**, the study of plant-diseases; **Plan'tae tris'tes**, evening flowering plants, as *Matthiola bicornis*, DC., etc.; **plan'tal**, pertaining to plants; **Plan'ticle**, the embryo in a seed; **Plan'tlet**, a little plant; **Plan'tule**, *Plan'tula* = PLUMULE; **Plantula'tio** = GERMINATION.

**Plasm**, **Plas'ma** (*πλάσμα*, that formed), used for PROTOPLASM; **Plasmamoe'bae** ( + AMOEBA), amoebiform masses of protoplasm, the actinophrydia of Gobi; **plasmatop'arous** (*pario*, I bring forth), in germination the whole of the protoplasm of a gonidium issues as a rounded mass, which at once becomes coated with a membrane, and puts out a germ-tube; **Plas'masome**, or **Plasmat'osome** (*σῶμα*, a body), a protoplasmic corpuscle, shortened to PLASOME; **plasmat'ic**, ready, or serving for growth, plastic; **Plas'mode** = PLASMODIUM; **Plasmo'diae**, Caruel's term for Myxogastres; **plasmo'dial**, **plasmo'dic**, pertaining to a plasmodium; **Plasmo'diocarp**, (*καρπὸς*, fruit), an asymmetrical sporangium of Myxogastres (Rostafiński); **Plasmo'diogens** (*γένος*, race, offspring), Macmillan's word for the protoplasmic units of a plasmodium; **plasmodioph'orus** (*φορέω*, I carry), producing a true plasmodium; **Plasmo'dium**, a mass of naked much-nucleated protoplasm, showing amoeboid movements; **aggrega'ted ~**, the myxamoebae congregated without fusion, each cell giving rise to a spore or foot-cell; **fused ~**, union of myxamoebae and subsequent fructification (Van Tieghem); **Plasmol'ysis** (*λύσις*, a loosing), a separation of the living protoplasm from the cell-wall by osmotic action; **plas'molysed**, subjected to plasmolysis; adj. **plasmolyt'ic**; **plasmoph'agous** (*φάγω*, I eat), absorbing the living organic matter of the host-plant without selection (Boulger); **Plasmosyn'agy** (*συνάγω*, I collect), accumulation of the protoplasts of the polioplasm and of the plastids included in it, due to plasmolytic irritation (Tswett); **Plas'ome**, a living element of protoplasm, shortened from PLASMATOSOME (Wiesner); **plas'tic**, capable of being moulded or modified; **~ Sub'stances**, those employed in building up, as cellulose, starch-grains, proteids, etc.; **Plastic'ity**, the quality of being plastic; **Plas'tid**, *Plastid'ium*, a protoplasmic granule in active cells, differentiated as centres of chemical or vital activity, as CHLORO-, CHROMO-, and LEUCOPLASTID; **Plas'tidplasm**, ( + PLASM), a supposititious substance differing from other forms of protoplasm by morphological characters (B. M. Davis); **Plas'tidule**, Elsberg's term for the smallest mass of protoplasm which can exist as such; **Plas'tin**, an essential ele-

ment of the entire protoplasmic cell-contents, including the nucleus and the chromatophores (Zacharias); **Plastog'amy** (*γάμος*, marriage), the fusion of cytoplasts into a plasmodium, the nuclei remaining distinct (Hartog); adj. **plastogam'ic**; **Plastog'eny** (*γένος*, race, offspring), when cytoplastic elements undergo a reorganisation by fusion (Hartog); **Plas'toid** (*εἶδος*, likeness), a needle-shaped body found in the stalk-cells of the tentacles of *Drosera*, becoming rounded under stimulus; a rhabdoid.

**Plate**, a flattened structure; *cf.* NUCLEAR ~, SIEVE ~.

**Plateau'** (Fr.), (1) the tubercular disk in a bulb which produces the scales upwards, and the roots downwards, *cf.* CORM (Crozier); (2) a similar structure in certain Compositae, interposed between the ovary and the other floral organs (Lecoq).

**platycar'pic, platycar'pous** (*πλατύς*, broad, *καρπός*, fruit), broad-fruited; **Platylob'eae** (*λοβός*, a lobe), used for certain Crucifers with flat cotyledons; **platylo'bate**, broad-lobed; **platyphyl'lous** (*φύλλον*, a leaf), broad-leaved.

**Plecolep'is**, ‡ *Plecolep'idus* (*πλέκω*, I plait, *λεπίς*, a scale), the involucre of Compositae when the bracts are united into a cup.

**Plectench'yma** (*πλεκτός*, woven, *ἔγχυμα*, an infusion), a tissue of woven hyphae; a pseudo-parenchyma, further divided into PARAPLECTENCHYMA and PROSOPLECTENCHYMA (Lindau).

**Pleioblas'tus** (*πλείον*, more, *βλαστός*, a bud), used by Koerber for those Lichen spores which germinate at several points; **Pleiochas'ium** (*χάσις*, separation), each relative main axis of a cyme producing more than two branches; adj. **pleiochas'ial**; **pleiocy'clic** (*κύκλος*, a circle), perennial, as ~ **Herbs**; **Pleiom'ery** (*μέρος*, a part), having more whorls than the normal number; **Pleiomor'phism, Pleiomor'phy** (*μορφή*, change), the occurrence of more than one independent form in the life-cycle of a species; **Pleiont'ism**, Delpino's term for POLYMORPHY; **pleiophyl'lous**, *-lus* (*φύλλον*, a leaf), with leaves having no apparent buds in their axils; **Pleiophyl'ly**, having numerous leaves from the same point, or more than usual the number of leaflets in a compound leaf; **Pleiopyre'nium** (+ PYRENIUM), small apothecia in one verruca, in Lichens; **pleiosper'mous** (*σπέρμα*, a seed), with an unusually large number of seeds; **Pleiotax'is, Pleiotax'y** (*ταξις*, order), increase in the number of whorls in a flower; **Pleiotrache'ae** (+ TRACHEA), "membranous tubes or tracheae containing a compound spiral fibre" (Cooke); **Pleiox'eny** (*ξένος*, a host or guest), where a parasite can invade several species of host-plants (De Bary).

**ple'nus** (Lat.), full, as *Flos plenus* = a double flower.

**Pleochro'icism** (*πλέον*, more, *χρόα*, colour, complexion), with various colours in the cell-wall; syn., **Pleochro'mism** (*χρῶμα*, colour), adj. **pleochro'ic, pleochrois'tic**; **Pleomor'phism, Pleomor'phy** (*μορφή*, shape), the same as PLEIOMORPHISM.

**Ple'on**, Naegeli's term for an aggregate of molecules, but smaller than a MICELLA.

**Ple'onasm** (*πλεόνασμα*, a surplus), redundance in any part (Crozier).

**Ple'rome** (*πλήρωμα*, that which fills), the cylinder or shaft of a growing point enclosed and overarched by periblem; ~ **Sheath** = BUNDLE-SHEATH.

**plesiomor'phous** (*πλησίος*, near, *μορφή*, shape), nearly of the same form (Crozier).

**Pleu'ra** (*πλευρά*, a side or rib), the girdle or hoop of Diatoms (O. Mueller); **Pleurench'yma** (*ἔγχυμα*, an infusion), woody tissue; **pleuroblas'tic**

(*βλαστὸς*, a bud), used of certain forms of Fungi, producing lateral outgrowths serving as haustoria; **pleurocar'pous**, *-pus* (*καρπὸς*, fruit), applied to those Mosses which bear their fructification on lateral growths, *cf.* ACROCARPOUS; **pleurodis'cous** (*δίσκος*, a quoit), when an appendage is attached to the sides of a disc; **pleurogy'rate**, *pleurogyra'tus* (*γυρὸς*, round), when Fern-sporangia have the annulus horizontal; **pleurogyn'ius**, **pleurogyn'us** (*γυνὴ*, a woman), used when a glandular or tubercular elevation rises close to or parallel with the ovary; **pleuroplas'tic** (*πλαστὸς*, moulded), Prantl's term for a leaf in which the central portion first attains permanency, the meristem being marginal; **pleurorhi'zal**, *-zus* (*ῥίζα*, a root), when an embryo has its radicle against one edge of the cotyledons, which are then accumbent; **Pleur'osperms** (*σπέρμα*, a seed), Angiosperms which began with chalazogamy, but have become porogamous (Nawaschin); adj. **pleurosper'mic**; **Pleurosporang'ium** (*σπορὰ*, a seed, *ἀγγεῖον*, a vessel), a sporangium which produces pleurospores; **Pleur'ospore**, a spore formed at the sides of a basidium in Basidiomycetes (Van Tieghem); **pleurotri'bal**, or **pleur'otribe** (*τρίβω*, I beat), used of flowers whose stamens are adapted to deposit their pollen upon the sides of insect-visitors.

**plexeoblas'tus** ‡ (*πλέξις*, a knitting, *βλαστὸς*, a bud), when cotyledons rise above ground in germination, but do not assume the appearance of leaves; **plex'us** (Lat., a twining), a network.

**Pli'ca**, pl. **Pli'cae** (*plico*, I fold or plait), (1) a plait or folding; (2) the lamella in Fungi; (3) a disease of entangled twigs, the buds producing abnormally short shoots; **pli'cate**, *plica'tus*, folded into plaits usually lengthwise; **plicat'ilis** (Lat.), the property of folding together; **Plica'tion**, a fold or folding; **plic'ative**, *plicati'vus* = PLICATE; **Plic'ature**, a fold or doubling; **plicat'ulate**, the diminutive of plicate (Crozier); **pli'ciform** (*forma*, shape), plait-like.

**Plococar'pium** (*πλοκὴ*, a tress, *καρπὸς*, fruit) = FOLLICLE; **Plopocar'pium**, an error for the last.

**Plum-pock'ets** = BAG-PLUMS.

**Plumba'gine**, a crystalline principle in the roots of *Plumbago*.

**plumb'eus** (Lat., leaden), lead-coloured.

**pluma'tus** (Lat.), feathered, pinnate.

**Plume** (Lat., the down of a feather), Grew's term for the PLUMULE; **plu'mose**, *plumo'sus* (Lat.), feathered, as the pappus of thistles.

**Plu'mule**, *Plu'mula* (Lat., a little feather), the primary leaf-bud of an embryo.

**plur-**, **plu'ri** (Lat.), used as a prefix for many or several, as plurilocular, many-celled, etc.

**Plur-an'nual** (+ ANNUAL), L. H. Bailey's word for an annual plant, which is so only by being killed by the cold at the end of the season, as *Reseda odorata*, Linn.; **pluricel'lular** (+ CELLULAR), many-celled; **plu'riceps** (*-ceps* from *caput*, a head), with more than one head, as many roots; **plurifo'liate**, **plurifo'lious** (*folium*, a leaf), having several leaves; **plurifo'liolate**, with several or many leaflets; **pluriflor'ous**, *-rus* (*flos*, *floris*, a flower), with several flowers; **pluriloc'ular**, *plurilocula'ris* (*loculus*, a little place), many-celled; **pluripar'tite**, *pluriparti'tus* (*partitus*, divided), deeply divided into several nearly distinct portions; **pluripet'alous** (*πέταλον*, a flower-leaf), polypetalous; **plurisep'tate** (*septum*, an enclosure), with several partitions; **plurispor'ous** (*σπορὰ*, a seed), having two or more seeds; **pluriv'alent** (*valens*, strong), used of nuclear divisions in which each element is composed of two normal elements (Haerker); **plurival'vis** (+ VALVA),

many-valved, as opposed to univalved or folliculate.

**Pneu'mato - chymif'era** [Va'sa] ‡ (*πνεῦμα, πνεύματος*, breath, air), spiral vessels (Lindley); **Pneu'matode** (*ὁδός*, a way), any opening of the nature of a lenticel or stoma (Jost); **Pneu'matophore**, *Pneumatoph'orum* (*φορέω*, I carry), (1) used of air-vessels of any description, as tracheids; (2) intercellular spaces in Rhizophoreae (Karsten); (3) ‡ the membranous tube of a spiral vessel (Lindley); **pneumatotac'tic** (*τακτικός*, apt for arrangement), applied to those zoospores whose irritability is dependent on the presence of dissolved gases, the products of respiration of the zoospores in the sporangium (Hartog); **Pneumatotax'y**, the condition described; **neg'ative ~**, the irritability which determines the escape of certain spores, as in *Achlya*; **Pneumatof'erus** (*fero*, I bear), the external membranous tube of spiral vessels (Henslow).

**Pock'et-plums** = BAG-PLUMS.

**poc'uliform**, *poculiform'is* (*poculum*, a cup, *forma*, shape), shaped like a goblet or drinking-cup.

**Pod**, a dry and many-seeded dehiscent fruit, a legume or silique; **~ -like**, applied to such fruits as those of *Corydalis*, *Hypecoum*, and *Cleome*.

**pode'tiiform** (+PODETIUM from *πούς, ποδός*, a foot, *forma*, shape), shaped like a podetium; **Pode'tium**, (1) a stalk-like elevation rising from the thallus and supporting an apothecium in some Lichens; (2) also applied to the support of the capitulum of *Marchantia*; and (3) the seta of Mosses; **Pode'ta** ‡ is given by Lindley as a synonym.

**podicel'late**, Leighton's term for stalked, as applied to Lichens.

**Podicil'lum** ‡ a very short podetium (Lindley); **Pod'ium, Pod'us**, a footstalk or similar support; **Pod'ocarp**, *Podocar'pus* (*καρπός*, fruit), a stipitate fruit, that is, when the ovary is borne by a gynophore; **podoceph'alous**, *-lus* (*κεφαλή*, a head), with a pedunculate head; **Podogyn'ium** (*γυνή*, a woman), an elevation in the centre of a flower which carries the ovary, a gynophore; adj. **podogyn'icus, podog'ynus**; **podop'terous** (*πτερόν*, a wing), having winged peduncles (Crozier); **Pod'osperm**, *Podosper'mium*, *-ma* (*σπέρμα*, a seed), the stalk of a seed, the funicle.

**Po'gon** (*πώγων*, a beard), used in composition to denote any collection of long hairs.

**Point'al**, an old term for PISTIL; **point'less**, muticous; **point'letted**, apiculate.

**Polache'na, Polacke'na** *Polake'nium* (*πολύς*, many, *α*, without, *χαίνω*, I gape), Richard's term for a fruit like a cremocarp, but composed of five carpels, *cf.* PENTACHENIUM.

**po'lar**, relating to the poles of an organ; **~ biloc'ular**, applied to Lichen spores which have cells at the opposite apices.

**Po'lar** (*πόλος*, a pivot) **Bod'ies**, a portion of the protoplasm of a mother-cell thrown off as nucleated cells from the oospore before fertilisation; **~ Cell**, = **~ BODY**; **~ Corpus'cle**, the central mass in each ASTER of a dividing nucleus; **~ Glob'ule**, = **~ BODY**; **~ Nu'cleus** a fourth nucleus in each group at the two extremities of the embryo sac, which move towards the middle of the embryo sac and there coalesce to form the secondary nucleus; **Polar'ity**, (1) the condition of having distinct poles; (2) the assumption of a direction pointing to the poles, as the compass-plant, *Silphium laciniatum*, Linn.

**Polem'bryony** = POLYEMBRYONY.

**po'leward** [dissyl.], towards the poles, in nuclear division.

**Polexosty'lus** (*πολύς*, many, *ἐξω*, out, *στύλος*, style) = CARCERULE.

**Po'lioplasm** (*πολιός*, grey, *πλάσμα*, moulded), Tswett's term for the

circulating portion of the cytoplasm.

**Polit'ropism** = POLYTROPISM.

**poli'tus** (Lat.), polished.

**pollachig'enus** (πολλαχῆ, often, γεννάω, I bring forth) = POLYCARPIC.

**Pol'len** (Lat. fine flour), (1) the fertilising dust-like powder produced by the anthers of Phanerogams, more or less globular in shape, sometimes spoken of as "Microspores"; (2) the antherozoids of Mosses (Hooker and Taylor); ~ **Carr'ier**, the retinaculum of Asclepiads, the gland to which the pollen-masses are attached, either immediately or by caudicles; ~ **Cells**, cavities of the anthers in which pollen is formed; ~ **Cha'mber**, (1) a cavity at the apex of some ovules beneath the integuments in which the pollen-grains lie after pollination, as in *Cycas*; (2) the extine of the pollen in some Coniferae dilated into two hollow expansions to facilitate dispersion by wind; ~ **Grain, Gran'ule**, the small bodies which compose the entire mass; the latter term is also used for the contents of the grain; ~ **Mass**, pollen-grains cohering by a waxy texture or fine threads into a single body; ~ **Sac**, the micro-sporangium in Phanerogams; ~ **Spore** = ~ GRAIN; ~ **Tet'rad**, the shape of certain groups consisting of four grains cohering in a pyramid, as in *Oenothera*; ~ **Tetrahed'ron** = last; ~ **Tube**, the tube emitted by a pollen grain passing down from the stigma to the ovary and ovules.—The various markings of the pollen-grains in Acanthaceae have received special names from L. Radlkofer and G. Lindau, which have been used in their original form in the "Flora of Tropical Africa"; the following account of them may be useful: **Dau'ben** ~ (Stave ~) a modification of Schalen- or Spalten ~, with broadened fissures having a stave-like insertion; **Do'sen** ~ (Box ~), elliptic, with three longitudinal stripes and a pore in each; **Facettier'ter** ~ (Facet ~), with facetted surface; **Fal'ten** ~ (Fold ~), with smooth surface and three deep longitudinal grooves; **Glat'ter** ~ (Smooth ~), destitute of prominent markings; **Gür'tel** ~ (Girdle ~), having a zone of varied marking; **Kam'mrad** ~ (Cogwheel ~), having regular projections on the equatorial region; **Knöt'chen** ~, an abbreviation for **Knötchendo'sen** ~, (Nodule ~), having a tuberculate surface; **Lin'sen** ~ (Lens ~), doubly convex in form; **Rah'men** ~ (Frame ~), with six small and three broad streaks between the poles; **Rip'pen** ~ (Rib ~), with longitudinal ribs having punctate markings on them; **Run'der** ~ (Round ~) spherical in form ~; **Scha'len** ~ (Shell ~), with three slits which do not reach the poles, and without pores, the pollen-tubes emerging from the slits, *cf.* SPALTEN ~; **Spal'ten** ~ (Fissure ~), with three longitudinal fissures, sometimes with pores in them; *cf.* SCHALEN ~; **Span'gen** ~ (Clasp ~), main ribs three, smaller ribs six, with three pores in the equatorial region, one between each two of the smaller ribs; **Sta'chel** ~ (Spine ~), having a spiny surface, pores from three to many; **Wa'ben** ~ (Honey-comb ~), having an areolate surface; **pol'lenate**, to fertilise by pollen; **Pollena'tion** = POLLINATION; **pollenif'erous**, *-rus* (*fero*, I bear), pollen-bearing; **Pol'lenine**, the contents of pollen-grains; **Pol'lenoid** = POLLINOID.

**Pol'lex** (Lat., a thumb), an inch in length, nearly 25 mm.

**pollica'ris** (Lat., pertaining to a thumb), an inch in length, about the length of the end joint of the thumb.

**Pollina'rium**, pl. **Pollina'ria** (*Pollen*, fine flour), (1) = ANDROECIUM; (2) = CYSTIDIUM.

**pollina'rius** (Lat., pertaining to fine flour), **pollino'sus**, as though dusted with pollen.

**pol'linate**, to apply pollen to the receptive surface of the female organ; **pol'linated**, *pollina'tus*, when a stigma is supplied with pollen; **Pollina'tion**, the placing of the pollen on the stigma or stigmatic surface; **lateral ~**, *cf.* PLEUROTRIBAL; **over ~**, *cf.* NOTOTRIBAL; **under ~**, *cf.* STERNOTRIBAL; **pollin'ic Cham'ber** = POLLEN-CHAMBER; **Pollin'ium**, pl. **Pollin'ia**, a body composed of all the pollen-grains of an anther-loculus, a pollen-mass; **Polliniza'tion** = POLLINATION; **Pollino'dium**, in Ascomycetes, a male sexual organ which conjugates with a female organ, directly or by outgrowth; **Pol'linoids** (*εἶδος*, resemblance), naked motionless masses of protoplasm, spherical or elongated, sometimes beaked, acting in the place of antherozoids in Florideae; **pollin'icus** (*pollen*, fine flour), composed of or bearing some relation to pollen.

**Pol'verine** (Ital., polverino), calcined ash of a soda-yielding plant.

**Polyadel'phia** (*πολύς*, many, *ἀδελφός*, a brother), a Linnean artificial class with stamens grouped into several brotherhoods or bundles; adj. **polyadelp'hous, polyadel'phian**; **polyad'enous** (*ἀδήν*, a gland), with many glands; **Polyan'dria** (*ἀνήρ, ανδρός*, a man), a Linnean class of plants possessing many stamens in each flower; **polyan'drian, polyan'drous**, having an indefinite number of stamens; **polyan'thous**, *-thus* (*ἄνθος*, a flower), having many flowers, particularly if within the same involucre; **polyari'nus** (*ἄρρην*, male), Necker's term for POLYANDROUS; **polyax'ial** (+ AXIAL), used of an inflorescence in which the flowers are borne on secondary, tertiary, etc., branches; **polyblas'tus** (*βλαστός*, a bud), Koerber's term for those Lichens which have polyseptate spores; **polycam'arus** (*καμάρα*, a vault) = POLYCARPIC; **polycarpel'lary** (+ CARPELLUM), of many carpels, free or united; **polycar'pic, polycar'picous** (*καρπός*, fruit), fruiting many times, indefinitely; used by De Candolle to denote a perennial herb; **polycar'pous**, *-pus*, (1) = POLYCARPIC; (2) of a flower in which the gynaecium forms two or more distinct ovaries; *cf.* MONOCARPIC; **polyceph'alous**, *-lus* (*κεφαλή*, a head), bearing many heads or capitula; *polycephali Pili*, are hairs divided at the end into several arms (Lindley); **polychlor'is**, an error for POLYCHORIS; **Polychor'ion** ‡ **Polychorion'ides**, ‡ **Polychor'is** (*χόριον*, foetal membrane), synonyms for ETAERIO; **Polychro'ite** (*χρόα*, colour, complexion), the yellow colouring matter of saffron; **Pol'ychrome** (*χρῶμα*, colour), a substance occurring in the bark of the Horse-chestnut which gives rise to varying colours; **Polyclad'ia, Polyclad'y** (*κλάδος*, a branch), plica, a supernumerary development of branches and leaves; adj. **polyclad'ous**; **Polycoc'cous**, *-cus* (*κόκκος*, a kernel), having many cocci; **Polyclo'nus, Polyclo'ny** (*κλών*, a branch), a synonym of POLYCLADIA; **Polycotyle'don**, pl. **Polycotyle'dones** (+ COTYLEDON), a plant which has several cotyledons; adj. **polycotyle'donous**; **Polycotyle'dony**, an increased number of the cotyledons, more than two; **polycy'clic** (*κύκλος*, a circle), when the members of a series, such as a calyx, or corolla, are in several circles; **polycys'tic** (*κύστις*, a bag) composed of several cells (Baillon); **polydel'phous** = POLYADELPHOUS (Crozier); **polyem'bryonate** (+ EMBRYO), having more than one embryo in a seed; **Polyem'bryony**, the production of more than a single embryo in an ovule; adj. **polyem'bryon'ic**; **polyflor'ous**, *-rus* (*flos, floris*, a flower), a barbarism for MULTIFLOROUS or POLYANTHOUS; **Polygam'ia**, a Linnean class con-

taining plants with polygamous flowers; **polygam'ian** = POLYGAMOUS; **polyg'amous** (*γάμος*, marriage), with hermaphrodite and unisexual flowers on the same, or on different individuals of the same species; **Polyg'amy**, the condition described; **polyg'amodioe'cious**, dioeciously polygamous (Crozier); **Polyg'eny** (*γένος*, race) Huxley's term for POLYPHYLESIS; **polygon'atus** (*γόνυ*, a knee), where the stem has many knots; **polyg'onus** (*γωνία*, an angle), multangular; **polygynae'cial** (*γυναικεῖον*, the women's house), having multiple fruits formed by the united pistils of many flowers; **polygyn'ous**, **polygyn'icus** (*γυνή*, a woman), having many distinct styles; **Polygyn'ia**, a Linnean order of plants so constituted; **Polyg'yny** = POLYGAMY; **polygy'rus** (*γῦρος*, a circle), in several whorls or circles.

**Polyhed'ron**, pl. **Polyhed'ra** (*πολύεδρον*, a solid of many bases), a stage in the growth of *Hydrodictyon*, when the hypnosperm or resting spore breaks up into several megazoospores which put out horn-like appendages; these polyhedra break up into zoospores.

**polylep'idus** (*πολύς*, many, *λεπίς*, *γεπίδος*, a scale), having many scales; **polym'erous**, *-rus* (*μέρος*, a part), with numerous members to each series or cycle; **polymor'phic**, **polymor'phous**, *-phus* (*μορφή*, a change), with several or various forms; variable as to habit; **Polymor'phy**, the existence of more than one form of the same organ on a plant; **polyneur'is** (*νευρίς*, a sinew), where the veins of a leaf, especially the secondary veins, are numerous; **polyoi'cous** (*οἶκος*, a house), a combination of (*a*) AUTOICOUS, (*b*) HETEROICOUS, or (*c*) SYNOICOUS, with DIOICOUS Mosses; **polyovula'tus** (+ OVULUM), furnished with many ovules; **polypet'alous**, *-lus* (+ PETAL), having several distinct petals; **Pol'yphore**, *Polyphor'ium* (*φορέω*, I carry), a torus with many pistils, as of a strawberry; **Polyphyle'sis** (+ PHYLETIC), descent from more than one line of descent; adj. **polyphylet'ic**; **Polyphylog'eny** (+ PHYLOGENY), lineage through several lines; **polyphyl'lous** (*φύλλον*, a leaf), having many leaves; **Pol'yphyll**, an increase in the normal number of organs in a whorl; **Pol'yplast** (*πλαστός*, moulded), a group of monoplasts which are the organic elements of protoplasm (Vogt).

**polyp'orous**, relating to the fungus genus *Polyporus*.

**polyrhi'zal**, **polyrhi'zous** (*πολύς*, many, *ῥίζα*, a root), (1) having numerous rootlets; (2) where parasites have many distinct rootlets apart from their haustoria; **Polysar'ca** (*σάρξ*, *σαρκός*, flesh), an unnatural growth due to excess of nutriment; **Polyse'cus** ‡ (*σῆκος*, a stall), Desvaux's term for an ETAERIO as in *Magnolia;* **polysep'alous**, *-lus* (+ SEPAL), with many distinct sepals; **polysi'phonous** (*σίφων*, a tube), applied to a filament of several coherent longitudinal rows of cells; **pol'ysperm**, **polysper'mal**, **polysper'mous**, *-mus* (*σπέρμα*, a seed), when a pericarp has numerous seeds; **Pol'yspore** (*σπορά*, a seed), a multicellular spore composed of MERISPORES (Bennett & Murray); **polyspor'ous**, containing many spores, used of Cryptogams, as in asci when more than four or eight spores occur; **polys'tachous** (Crozier) = **polystach'yous** (*στάχυς*, a spike), having many spikes; **polyste'lic**, **polyste'lous** (+ STELE), with more than one plerome strand at the growing point, so that the stem has more than one stele, as in *Gunnera*; **Polyste'ly**, the condition specified; **polyste'monous**, *-nus* (*στήμων*, a filament), having many stamens, polyandrous; **polystig'mus** (+ STIGMA) with many carpels, each originating a stigma; **polys'tomous**, *-mus* (*στόμα* a

mouth), many mouthed, with numerous suckers or haustoria; **polysty'lous**, *-lus* (+ STYLE), with several styles; **polysymmet'rical** (*συμμετρία*, apt proportion), having bilateral symmetry in more planes than one, actinomorphic; **polythalam'ic** (*θάλαμος*, a bed-chamber), (1) having more than one female flower within the involucre; (2) derived from more than one flower, as a collective fruit; **polythe'leus** (*θηλή*, a nipple), used of a flower which contains several distinct ovaries; **polyt'ocous**, *-cus* (*τόκος*, a birth), fruiting year after year, caulocarpous; **polyt'omous**, *-mus* (*τομή*, a cutting), apparently pinnate, but the pinnae not articulated to the common petiole; **Polyt'omy**, (1) in an inflorescence, having more axes than in dichotomy; (2) a false pinnation; **polyt'richous** (*θρίξ*, *τριχός*, a hair), having many hairs; **Polyt'ropism** (*τροπή*, a twining), Archangeli's term when leaves place their lamina vertically and meridionally, the two surfaces facing east and west; **polytrop'ic**, Loew's term for bees which visit a wide circle of flowers; **polytyp'ic** (*τύπος*, a type), applied to a genus having several species; **Polyx'eny** (*ξένος*, a guest) = PLEIOXENY; **Polyzygo'sis** (*ζυγός*, a yoke), the conjugation of more than two gametes (Crozier).

**poma'ceous** (*pomum*, a fruit, + aceous), relating to apples; **Pome**, *Po'mum*, an inferior fruit of several cells, of which the apple is the type.

**pomeridia'nus** (Lat.), in the afternoon.

**pomif'erous**, *po'mifer* (*pomum*, a fruit, *fero*, I bear), pome-bearing; **po'miform**, *pomiform'is* (*forma*, shape), shaped like an apple; **Pomol'ogy**, *Pomolo'gia* (*λόγος*, discourse), the science of edible cultivated fruits.

**Pomo'na**, an account of the fruits cultivated in any given district or country; the name is mythological.

**pooph'ilous** (*πόα*, grass, *φιλέω*, I love), meadow-loving plants which consort with grasses (Pound and Clements); **Po'ophyte** (*φυτόν*, a plant), a plant inhabiting meadows; adj. **poophyt'ic**, pratal.

**Po'pulin**, a crystallisable substance from the bark of the aspen, *Populus tremula*, Linn.

**poran'drous** (*πόρος*, a passage, *ἀνήρ*, *ἀνδρός*, a man), when the anthers open by pores; **Pore**, *Por'us*, (1) any small aperture, as in anthers, for the emission of pollen in the pollen grains themselves, in the epidermis as stomata or water-pores; (2) in *Polyporus*, any of the tube-like openings, forming the hymenium; (3) large pitted vessels or tracheids in wood; ~ **Canal'**, the passage through a pit between neighbouring cells; ~ **Cap'sule**, a capsule dehiscing by pores, as in the poppy; ~ **Cir'cle**, the zone in the annual rings of certain trees, such as oak, which displays numerous tracheids; ~ **Cork**, cork-cells in lenticels with intercellular spaces between them (Klebahn); ~ **Pas'sage**, the stomatic passage between the inner and outer cavities; — **cor'tical** ~, = LENTICEL; **Porench'yma** (*ἔγχυμα*, an infusion), tissue of elongated cells, and apparently pierced by pores; pitted tissue; **porici'dal** (*caedo*, *cecidi*, to cut), applied to anthers which open by pores, porandrous; **por'iform** (*forma*, shape), like a pore (Leighton); **Por'ogams** (*γάμος*, marriage), phanerogamous plants which are fertilised by way of the chalaza instead of the micropyle (Treub); **Porog'amy**, the condition described; adj. **porog'amous**; **por'ose**, *poro'sus*; **por'ous**, pierced with small holes; ~ **Ves'sels**, pitted or dotted vessels.

**porphyr'eus** (*πορφύρεος*, purple), purple in colour, purpureus; **porphyroleu'cus** (*λευκός*, white), light purple.

**porra'ceous**, *porra'ceus* (Lat.), leek-green

**porrect'**, *porrec'tus* (Lat., stretched out), directed outward and forward; *cf.* ARRECT.

**por'ulus** (Lat.), somewhat porous.

**Por'us** = PORE.

**pos'itive**, the absolute or effective condition, opposed to negative, and prefixed for emphasis to such terms as Geotropism, Heliotropism, Hydrotropism, etc.

**poste'rior** (Lat., coming after), (1) next or towards the main axis, superior; the reverse of ANTERIOR; (2) in anthers = EXTRORSE; **posti'cal, posti'cous**, *posti'cus* (Lat., that which is behind), on the posterior side, next the axis; extrorse; Spruce and others use "postical" for the ventral or rooting face of the stem of Hepaticae.

**postventit'ious**, *-tius* (*post*, after, *venio*, I come), applied to growths which arise subsequent to their normal time; *cf.* PREVENTITIOUS.

**poten'tial** (*potentia*, force), existing in possibility, not in action; used in opposition to KINETIC; ~ **Gam'etophyte**, one which is functionally asexual; ~ **Par'asite**, a saprophyte which can live equally as a parasite; ~ **Sap'rophyte**, a parasite capable of existing as a saprophyte.

**Potetom'eter** (*ποτὴς*, a drink, *μέτρον*, a measure), apparatus for measuring the amount of water given off by the leaves of plants (Moll); **Potom'eter**, a similar instrument for measuring the flow of liquids in tissues (F. Darwin).

**pott'ioid** (*εἶδος*, likeness), resembling the genus *Pottia*.

**Pouch** = SILICLE; ~ **shaped**, hollow and bag-like, as the spur in many Orchids; **diges'tive** ~; used by Van Tieghem and Douliot for the root-cap of the lateral roots of Leguminosae and Cucurbitaceae.

**pow'dery**, covered with a fine bloom, as the leaves of *Primula farinosa*, Linn.

**prae-**, or **pre-** (*prae*, before), expresses priority in time or place.

**prae'cox** (Lat., early ripe), appearing or developing early; precocious.

**Praeflora'tion** (*praefloratio*, blossoming before time) = AESTIVATION.

**Praefolia'tion** (*prae*, before, *folium*, a leaf) = VERNATION.

**prae'morse**, *praemor'sus* (Lat., bitten at the end), as though the end were bitten off.

**praero'sus** (Lat.), apparently gnawed off.

**praeus'tus** (Lat., burned at the end), looking as if scorched.

**pras'inous**, *pras'inus* (Lat.), grass-green, leek-green.

**pra'tal** (*pratum*, a meadow), H. C. Watson's term for those plants which grow in meadows or luxuriant herbage; **praten'sis** (Lat.), growing in meadows, or pertaining thereto.

**precator'ius** (Lat., relating to petitioning), used for a rosary, as the seeds of *Abrus*; ~ **contex'tus**, necklace-shaped, moniliform.

**pre'cius** (Lat.), **preco'cious** = PRAECOX.

**predom'inant**, "very conspicuous" (Braithwaite).

**Preflora'tion** = PRAEFLORATION; **Prefolia'tion** = PRAEFOLIATION.

**Preforma'tion** (*pre*, before, *formatio*, a shaping), the theory of the function of germ-plasm, a complex substance whose ultimate factors direct the vital activities of the cell, and resultant form of the plant.

**Prehaustor'ium** (*pre*, before, + HAUSTORIUM), papillate epidermal cells of *Cuscuta*, by which nutriment is obtained before the formation of haustoria (Peirce).

**premorse'** (Crozier) = PRAEMORSUS.

**Prepo'tency** (*pre*, before, *potentia*, power), the quality by which certain pollen fertilizes a given pistil, in preference to other pollen.

**Pres'sure**, stress or distributed force causing turgor or compression; **root** ~, pressure existing in the root-tissues tending to cause the rise of liquid in the stem.

**preventit'ious** (*prae*, before, *venio*, I

come) **Buds**, dormant eyes, present on any given portion of the stem, which produce epicormic branches (Hartig).

**prever'nal** (*pre*, before, *vernalis*, of the spring), early spring flowering.

**Prick'le**, outgrowths of the rind or bark, as those of the rose ; **prick'ly**, armed with prickles.

**pri'mary**, *prima'rius* (Lat., chief), (1) used of the part first developed ; (2) the main divisions of a leaf or umbel ; ~ **Ax'is**, the main stem ; ~ **Bast**, consists of sieve tissues and parenchyma ; ~ **Cor'tex**, the PERIBLEM ; ~ **Des'mogen**, = PROCAMBIUM ; ~ **Lamel'la**, of a spore, is the outermost layer of its coats, representing the original wall ; ~ **Leaves**, the primordial leaves ; ~ **Lay'er**, see "tapetal cell" (infra) ; ~ **Mem'brane**, the first (?) cell-wall ; ~ **Mem'bers**, the primary shoot and root ; ~ **Mer'istem**, the embryonic tissue of a young organ ; ~ **Pet'iole**, the main rhachis of a compound leaf ; ~ **Phlo'em** = ~ BAST ; ~ **Root**, the main root developed from the radicle ; ~ **Shoot**, the main stem developed from the plumule ; ~ **Struc'ture**, a nascent organ, as of root or shoot ; ~ **tape'tal Cell**, or **Lay'er**, the source whence the tapetum is formed by bipartition of a cell or layer of periblem ; the other part of the division becoming the archesporium ; ~ **Tis'sue**, (*a*) that first formed or (*b*) formed during the first season's growth ; ~ **Wood**, the wood developed by the procambium.

**primigen'ius** (Lat., first produced) = PRIMITIVUS.

**Pri'mine**, *Pri'mina* (*primus*, first), the outer integument of an ovule.

**prim'itive**, *primiti'vus* (Lat., first of its kind), applied to the part first developed ; specific types, in contrast to varieties and hybrids ; ~ **Wall**, a boundary between the ooplasm and periplasm of the oosphere in *Cystopus Bliti*, De Bary (Stevens).

**Primor'dia**, pl. of **Primor'dium** (Lat., the beginning), a member or organ in its earliest condition ; the German "Anlage" ; **primor'dial**, *primordia'lis*, first in order of appearance ; ~ **Cell**, a naked cell, one without a cell-wall ; ~ **Epider'mis**, the epidermis when first formed ; ~ **Leaf**, an intermediate form between the cotyledon and those of the adult plant produced by growth from the plumule ; ~ **Tis'sue**, ground tissue ; ~ **U'tricle**, the outer layer of cell-protoplasm lining the inner surface of a vacuolated cell ; by some considered the same as ECTOPLASM.

**Pri'mospore** (*primus*, first, *σπορά*, a seed), term proposed by C. Macmillan for those cases in which the spore is but little differentiated from an ordinary cell of the parent organism.

**prismat'ic**, *prismat'icus* (Lat., like a prism), **prism-shaped**, with flat faces separated by angles ; **Prismench'yma** (*ἔγχυμα*, an infusion), prismatic cellular tissue.

**Pris'on-Flow'ers**, those which imprison their insect-visitors until fertilization is effected.

**Proan'giosperms** (*pro*, for, + Angiosperm), an Angiosperm in the act of becoming so from some ancestral form (Saporta and Marion) ; **Proangiosper'my**, the state in question.

**Proanthe'sis** (*πρῷ*, early, *ἄνθησις*, flowering), flowering in advance of the normal period, as some flowers appearing in autumn in advance of the ensuing spring (Pax).

**Probas'id** (*pro*, for, + BASIDIUM), Van Tieghem's term for an organ intermediate between a basidium and a sporophore in Basidiomycetes, bearing a teleutospore.

**proboscid'eus** (*proboscis*, a snout), having a large terminal horn, as the fruit of *Martynia*.

**Procam'bium** (*pro*, for, + CAMBIUM), the embryonic tissue, consisting of somewhat elongated cells, from which the vascular tissue is eventu-

ally formed; **Pro'carp**, *Procar'pium* (*καρπός*, fruit), an archicarp with a special receptive organ, the trichogyne.

**proce'rus** (Lat.), very tall, as a tree.

**Pro'cess**, *Proces'sus* (Lat., a prolongation), any projecting appendage, *Proces'sus Hyme'nii*, "the aciculae of certain Fungals" (Lindley).

**procum'bent**, *procum'bens* (Lat., leaning forward), lying along the ground.

**Prob'able Er'ror**, see DEVIATION, PROBABLE.

**Prod'ucts**, substances resulting from metabolism or chemical changes in plants.

**Produc'tum** ‡ (*productus*, lengthened), = CALCAR.

**Pro-em'bryo** (*pro*, for, + EMBRYO), (1) in Characeae, the product of the oospore, upon which the *Chara*-plant develops as a lateral bud; (2) in Archegoniatae the product of the oospore before differentiation of the embryo; (3) ‡ the youngest thallus of a Lichen; **proembryon'ic**, relating to a pro-embryo, as the ~ **Branch** in *Chara*, a propagative body having the structure of a pro-embryo arising from a node of the stem.

**proë'minens** (Lat., projecting), used of an unusually extended part.

**progam'etal** (*pro*, for, + GAMETE), of the nature of a **Progam'ete**, a cell which divides to form gametes, or occasionally passes into a gamete (Hartog).

**Progam'etange**, *Progametan'gium* (*ἀγγεῖον*, a vessel), resting bodies in *Protomyces macrosporus*, Unger; **progam'ic** (Hartog), **pro'gamous**, in advance of fertilization; ~ **Cell**, a cell formed in the pollen-grain which has the sperm-nucleus (Goebel).

**progred'iens** (Lat., advancing), extending at one part, and dying in the rear.

**progres'sive** (*progressus*, an advance), advancing; ~ **Metamorph'osis**, the appearance of organs in an ascending scale, as when petals are replaced by stamens; opposed to RETROGRESSIVE METAMORPHOSIS.

**Progym'nosperms** (*pro*, for, + Gymnosperm), prototypic Gymnosperms, as *Bennettites* (Saporta and Marion).

**Projectu'ra** (Lat., a jutting out), a small longitudinal projection on some stems where the leaf originates.

**Proios'pory** = PROSPORY.

**Prokine'sis** (*πρό*, before, *κίνησις*, a moving), the early stage of nuclear division, up to the ASTER.

**pro'late** (*prolatus*, a bringing forward), drawn out towards the poles.

**Prole** (Crozier), = **Pro'les** (Lat., offspring), (1) progeny; (2) sometimes used for race; (3) ‡ the species.

**Prole'psis** (*πρόλημψις*, anticipation), (1) a foreshadowing, something of anticipation; (2) "hurried development as in the disease known as 'peach-yellows' where axillary buds develop into branches the first year" (Crozier); **prole'pticus** (Lat.), used by Wimmer instead of PRAECOX.

**Proleta'rian** (*proletarius*, a citizen of the poorest class), a name suggested by M'Leod to denote plants having only a small reserve, and self-fertilized; *cf.* CAPITALIST.

**pro'lifer**, *prolif'erus*, **prolif'erous** (*proles*, off-spring; *fero*, I bear), bearing progeny as offshoots; **Prolifera'tion**, *Prolifera'tio*, development proliferously; **prolif'ic**, *prolif'icus* (M. Lat., producing offspring), fruitful, fertile; **Prolifica'tion**, the production of terminal or lateral leaf-buds in a flower; **prolig'erous**, *-rus* (*gero*, I bear), proliferous, in Lichens applied to the spore-bearing portion of the apothecium (Henslow); *cf.* LAMINA PROLIGERA.

**prom'inent**, *prom inens* (Lat., jutting out), standing out beyond some other part.

**Promycele'** = **Promyce'lium** (*pro*, for + MYCELIUM), the short-lived pro-

duct of tube-germination of a spore, which abjoints a few spores unlike the mother-spore, and then perishes.

**pro'nate**, "inclined to grow prostrate" (Crozier).

**prone**, *pro'nus* (Lat., leaning forward), lying flat, especially the upper face downward.

**Pronu'cleus** (*pro*, for, + NUCLEUS), the nucleus of a conjugating gamete, which on coalescing with another pronucleus forms the germ-nucleus.

**Prop**, used by Withering for STIPULE.

**propaculif'erous** (*propago*, a set or layer, *fero*, I bear), bearing off-sets, as *Sempervivum*; **Propa'culum**, a runner or off-set.

**prop'agative**, tending to increase by asexually produced growths, as gemmae, soredia, etc.

**Propa'gulum** (dim. of *propago*, a set or layer), (1) an off-set; (2) in Lichens, the powdery organs which constitute the SOREDIA; **Propa'go**, pl. **Propa'gines**, (1) a bulblet; (2) the branch bent down for layering.

**propen'dent**, *propen'dens* (Lat.), ranging down.

**prop'er**, true, or correctly understood; ~ **Juice**, any characteristic "fluid" of a plant, as the "milk" of lettuce, etc.

**Properimer'istem** (*pro*, for, + PERIMERISTEM), a synonym of PERIMERISTEM.

**Proph'asis**, pl. **Proph'ases** (*πρὸ*, before, *φάσις*, an appearance), the changes in the mother-nucleus previous to division, including the formation of the nuclear plate and the longitudinal division of the chromosomes; **Prophlo'ëm** (+ PHLOEM), (1) PROTOPHLOEM; (2) the cylinder of elongated cells with thickened walls, occurring in the seta of some Mosses round the protoxylem; **Pro'phyllum** (*φύλλον*, a leaf), the bracteole at the base of an individual flower, in German "Vorblatt"; **prophylla'tus**, provided with prophylla; **prophyl'loid** (*εἶδος*, resemblance), like prophylla.

**Proph'ysis** = PROSPHYSIS.

**Prophy'togams** (*πρὸ*, before, *φυτὸν*, a plant, *γάμος*, marriage), Focke's proposed name for vascular Cryptogams.

**prop'rius** (Lat., special, peculiar), partial.

**Proscol'la** ‡ (*πρὸς*, close to, *κόλλα*, glue), a viscid gland on the upper side of the stigma of Orchids, to which the pollen-masses become attached, the RETINACULUM.

**Prosem'bryum** (*πρὸς*, near, *ἔμβρυον*, an embryo), = PERISPERMIUM; **Prosench'yma** (*ἔγχυμα*, an infusion), tissue of lengthened cells with tapering ends which overlap; adj. **prosenchy'matous**; **Prosenthe'sis** (*ἔνθησις*, imposition), the quantity which determines the divergence between two successive whorls in a shoot (Pax).

**Pros'physes** (*φύομαι*, to grow with), "abortive pistillidia of the muscal alliance" (Lindley); **Prosoplectench'yma** (+ PLECTENCHYMA), a modification of hyphal tissue (Lindau).

**Prosporan'gium** (*πρὸ*, for; *σπορὰ*, a seed; *ἀγγεῖον*, a vessel), (1) in Chytridieae, etc., a vesicular cell whose protoplasm passes into an outgrowth of itself, the sporangium, and then divides into swarm-spores; (2) in Phaeosporeae, an early formed sporangium, formed of a layer of the filament combined with an outgrowth (Kuckuck); **proste'lic** (+ STELE), when an axis consists of a single concentric bundle (Jeffrey).

**Pros'pory** (*πρώιος*, precocious, *σπορὰ*, a spore), abbreviated from PROIOSPORY, the precocious development of spores in certain Algae; **Pros'tady** (*στάδιος*, steady), the early fruiting stage described above.

**pros'trate**, *prostra'tus* (Lat., thrown to the ground), lying flat.

**Pros'typus** (*πρόστυπος*, embossed) = RAPHE.

**Protal'bumose** = PROTO-ALBUMOSE.

**protan'drous** (*πρῶτος*, first, *ἀνήρ*, *ἀνδρός*, a man), the anthers mature before the pistils in the same flower; **Protan'dry**, the androecium ripening before the gynaecium, the pollen being dispersed before the pistils are receptive.

**protea'ceous**, relating to or resembling the order Proteaceae.

**Protec'tive Sheath** = ENDODERMIS.

**Pro'teid**, (1) a group of albuminoids, more or less resembling albumen; with water, the group of proteids constitute the bulk of protoplasm; (2) used also for ~ **Gran'ule** or ~ **Plas'tid**; ~ **Ba'sis**, that portion of protoplasm which is not composed of granules, it is sometimes absent; ~ **Crys'tal** = CRYSTALLOID; ~ **Gran'ules**, reserve materials, or aleurone granules; **Pro'tein**, a group of complex nitrogenous substances, as NUCLEIN, etc.; adj. **pro'teinic**; ~ **Crys'tal** = CRYSTALLOID; ~ **Grain** = ALEURONE GRAIN; **proteina'ceous** (+aceous), pertaining to protein, or composed of it.

**Pro'ten** (Sachs) = PROTENCHYMA.

**Protench'yma** (*πρῶτος*, first, *ἔγχυμα*, an infusion), fundamental or ground tissue; **Protene'ma** = PROTONEMA, the filamentous embryo in Mosses.

**Proteohydrol'ysis** (PROTEID + HYDROLYSIS), the decomposition of proteids by hydrolysis; adj. **proteohydrolyt'ic**; **proteolyt'ic** (*λύσις*, a loosing), decomposing proteids; ~ **En'zyme**, an unorganised ferment which is the active cause in breaking up proteids; **Pro'teose**, a soluble albuminoid found in gluten; **Pro'teosomes** (*σῶμα*, a body), granular precipitations in the cells caused by the action of certain alkaloids, as caffeine.

**proteran'drous** (*πρότερος*, first, *ἀνήρ*, *ἀνδός*, a man), the anthers ripe before the pistils in the same flower; protandrous, one kind of dichogamy (Delpino); **Proteran'dry**, the condition described; **proteran'thous**, *-thus* (*ἄνθος*, a flower), where flowering precedes leafing, hysteranthous; **proterog'ynous**, *-nus* (*γυνή*, a woman), when the pistils are receptive before the anthers have ripe pollen (Delpino); **Proterog'yny**, the state described; **proteropet'alous** (*πέταλον*, a flower-leaf), the state of obdiplostemonous flowers, when the epipetalous whorl of stamens is the inner (Schumann); **proterosep'alous** (+ SEPALUM), as above, when the whorl in question is the outer.

**Prothalla'tae** (*πρό*, for, *θαλλός*, a sprout), Haeckel's term for Mosses and vascular Cryptogams; **prothal'liform** (*forma*, shape), resembling a prothallus; **Prothal'lium**, pl. **Prothal'lia**, **Prothal'lus**, a thalloid oophyte or its homologue resulting from the germination of a spore, usually a flattened leafy expansion and bearing sexual organs; **Prothallogam'ia** (*γάμος*, marriage), Caruel's term for the vascular Cryptogams.

**protis'toid** (*Protista* = Protophyta + Protozoa, from *πρώτιστος*, the very first, *εἶδος*, resemblance), in cell-division, not influenced by the cells forming part of a complex multicellular body (Hartog).

**Pro'toblast** (*πρῶτος*, first, *βλαστός*, a bud), Baillon's term for the cell before the formation of a cell-wall, the naked mass of protoplasm; **Protochlor'ophyll** (+ CHLOROPHYLL), a pigment found in etiolated leaves with carotin and xanthophyll (Monteverde); **Protochlorophyl'line**, a product of reduction of the green principle of chlorophyll (Timiriazeff), *cf.* PROTOPHYLLINE; **protococ'coid** (*εἶδος*, resemblance), resembling the algal genus *Protococcus*; **Protocollench'yma** (+ COLLENCHYMA), the earliest formed elements of collenchyma; **Pro'tocorm** (*κορμός*, a trunk), the tuber of *Phylloglossum* and other Lycopods, the only branch which develops into next year's tuber; **Protoëp'iphyte** (+ EPIPHYTE), a plant

which is primarily an epiphyte pure and simple; *cf.* HEMIEPIPHYTE; **Protogamophy'ta** (*γάμος*, marriage, *φυτὸν*, a plant), a group of plants so named by C. Macmillan, without definition; **Protogen'esis** (*γένεσις*, a beginning), reproduction by budding; **protogen'ic, protogenet'ic** (*γένος*, race, offspring), in development, structures formed when tissues begin to differentiate, *cf.* HYPEROGENIC; **protog'ynous** (*γυνὴ*, a woman) = PROTEROGYNOUS; **Protog'yny** = PROTEROGYNY; **Protohad'rome** (+ HADROME) = PROTOXYLEM; **Protolep'tome** (+ LEPTOME) = PROTOPHLOËM; **Protomer'istem** (+ MERISTEM), the meristem of the growing point forming the foundation of a member; **Protone'ma** (*νῆμα*, a thread), the confervoid or plate-like growth in Mosses on which the conspicuous plant is developed as a lateral or terminal shoot; adj. **protone'mal**, also **protone'matoid**; ~ **Em'bryo**, of *Cutleria multifida*, Grev., a form of embryo which reproduces the normal plant (Church); **Protophlo'ëm** (+ PHLOEM), the first formed elements of bast in a vascular bundle; **Protophyl'line**, Timiriazeff's alternative name for PROTOCHLOROPHYLLINE; **Pro'tophyll**, *Protophyl'lum* (*φύλλον*, a leaf), a leaf borne by a PROTOCORM; a cotyledon or primordial leaf, especially used of a Cryptogam; **Pro'tophyt** (*φυτὸν*, a plant), a plant of the sexual generation (Bower); **Pro'tophyte**, pl. *Protophy'ta*, the simplest plants, the lower unicellular Cryptogams; adj. **protophyt'ic**; **Protophytol'ogy** (*λόγος*, discourse) = PALAEOBOTANY; **Pro'toplasm, Protoplas'ma** (*πλάσμα*, moulded), the viscous living substance in plants, into which all nourishment is taken, and from which all parts are formed; various modifications of it have special names; **Pro'toplast**, the unit of protoplasm capable of individual action, a cell either with or without a wall (Hanstein); **Protoplas'tid**, an individual or presumable primitive type; **Protoplas'tin**, Hanstein's term for a hypothetic substance, the ultimate source of vital movement and chemical combination; **Protosclerench'yma** (+ SCLERENCHYMA), used for certain collenchyma which resembles true hard bast, provisional collenchyma of Haberlandt; **Pro'tospore** (*σπορά*, a seed), (1) a spore which develops a promycelium; (2) certain energids or uninucleate bodies in *Pilobolus*, etc., the ultimate product of cleavage (Harper); **Protospor'ophyte** (*φυτὸν*, a plant), C. Macmillan's term for certain Cryptogams, not otherwise defined; **Pro'tostrophes**, pl. (*στροφή*, a turning), secondary spirals in the development of leaves (Lindley); **Protothallog'amae**, pl. (+ THALLOGAMAE), Ardissone's term to include Angiosperms, Gymnosperms, and vascular Cryptogams; **Protothal'lus** (*θάλλος*, a shoot) = HYPOTHALLUS, the first formed stratum of a Lichen; **Pro'totroph** (*τροφή*, nourishment), a "lodger" in *Lecidia intumescens* Nyl., which eventually gets its nourishment by means of another lodger, a different Lichen (Minks); **Protot'rophy**, the peculiar commensalism described above, also styled "Wet-nurse relationship"; also spelled **Pro'trophy**; **Protoxy'lem** (+ XYLEM), the first formed elements of wood in a vascular bundle; **protozooph'ilous** (*ζῷον*, an animal, *φιλέω*, I love), used of certain water-plants which are fertilized by small animals, or protozoa.

**protru'ding** (*protrudo*, I thrust out), exerted.

**protu'berans** (Lat.), bulging out; *Protuberan'tia elonga'ta*, "the aculae of certain Fungals" (Lindley).

**provine'** (Fr., provigner), to layer a vine.

**prox'imal** (*proximus*, next, nearest), the part nearest the axis, as opposed to DISTAL.

**prox ylar** ‡ (*προ*, for, *ξύλον*, wood), capable of forming wood; **Proxyle'**, **Proxy'lem** = PROTOXYLEM; **Prozy'mogen** (+ ZYMOGEN), a material formed of the chromatin of the nucleus which is extruded into the cytoplasm there becoming zymogen (Macallum).

**Prui'na** (Lat., hoar-frost) **semina'lis**, "the spores of certain Fungals" (Lindley); **pru'inate**, *pruina'tus*, **pru'inose**, *pruino'sus*, **pru'inous**, having a waxy powdery secretion on the surface, a "bloom."

**prunif'erous** (*prunum*, a plum, *fero*, I bear), bearing plums; **pru'niform**, *pruniform'is* (*forma*, shape), plum-shaped; **Pru'nus** ‡ = DRUPE.

**pru'rient**, *pru'riens* (Lat., itching), causing an itching sensation.

**psammoph'ilous** (*ψάμμος*, sand, *φιλέω*, I love), sand-loving, as the vegetation of dunes; **Psam'mophyte** (*φυτόν*, a plant), a sand-loving plant, as dune plants.

**Pseudacran'thic** (*ψευδής*, false, + ACRANTHIC), applied to flowers from dichasial shoots which are apparently terminal (K. Schumann); **Pseud-an'nual** (+ ANNUAL), an herbaceous plant which hibernates as a tuber or bulb (L. H. Bailey); **Pseudan'nulus** (+ ANNULUS), an apparent annulus of specialized cells, exterior to the peristome in Mosses; **pseudan'thic** (*ἄνθος*, a flower), a flower which simulates a simple flower, but is composed of more than a single axis, with subsidiary flowers (Delpino); **Pseudan'this**, the state in question; **Pseudax'is** (+ AXIS) = SYMPODIUM; **pseudhomonym'ic** (+ *Homonym*), used by F. N. Williams for a partial homonomy, as *Gastrolychnis* and *Gastrosilene*; **Pseudin'ulin** (+ INULIN), a subordinate constituent of inulin (Tancret); **pseudobiator'ine**, falsely biatorine, having an apothecium without a conspicuous thalline margin; **Pseu'dobulb** (+ BULB), a thickened and bulb-like internode in Orchids, a corm; **Pseudobul'bil** (+ BULBIL), a growth from the roots of *Acriopsis javanica*, Reinw., composed of two internodes, and bearing leaves at the apex; **Pseudo-capillitium** (+ CAPILLITIUM), Lister's term for a structure in *Enteridium*, consisting of the perforated walls of the component sporangia; **Pseu'docarp**, *Pseudocar'pium*, *Pseudocar'pus* (*καρπός*, fruit), (1) a fruit with its accompanying parts, as a strawberry; (2) = GALBULUS (Henslow); **Pseudocel'lulose** (+ CELLULOSE), see CELLULOSE; **Pseudocephalo'dium** (+ CEPHALODIUM), a growth formed in the protothallus by a germinating hypha investing an algal colony of some other type than the normal gonidia of the Lichen (Forseil); **Pseudocil'ium** (*cilium*, an eyelash), a motionless whip-like body, proceeding in pairs from each cell of *Apiocystis Brauniana*, Naeg. (Correns); **pseudocos'tate**, *pseudocosta'tus* (*costatus*, ribbed), false-ribbed, as where a marginal vein is formed by confluence of the true veins; **Pseudocotyle'don** (+ COTYLEDON) = PROEMBRYO; **Pseudodys'tropy** (*δυσ* = bad, *τροπή*, a turning), when eutropous insects gain access to honey by secondary means, as when certain bees bore through to the nectaries, instead of entering by the opening of the flower (Loew); **Pseudoëp'iphyte** (+ EPIPHYTE), a plant whose stems die away at the base, and the upper part derives its nourishment from its own aërial roots, as Aroids (Went); **Pseu'do-fecunda'tion** (+ FECUNDATION), two nuclei of four combine to form the egg, the other two form the albumen (Guignard); **Pseudog'amy** (*γάμος*, marriage), parthenogenetic fruiting, as pollination without impregnation of ovules; **pseudogyra'tus** (*γυρός*, curved), falsely ringed, as when the annulus is confined to the vertex of the sporangium in Ferns;

**Pseudohaustor'ium** (+ HAUSTORIUM), an immature or rudimentary organ observed in seedlings of *Cuscuta* (Kinzel); **pseu'do-hermaph'rodite** (+ HERMAPHRODITE), Kerner's term for flowers which have become functionally unisexual by the suppression of either stamens or pistils; **Pseudohyme'nium** (+ HYMENIUM), a covering of sporidia, resembling the hymenium of Fungi; **Pseudo-impregna'tion** (+ IMPREGNATION), the coalescence of the two nuclei of the cells of a teleutospore (Dangeard & Sapin-Trouffy); **Pseudola'tex** (+ LATEX), Heckel's term for an abundant gummy juice, white or colourless, in certain species of *Vanilla*; **Pseudoli'ber** (+ LIBER), Guillaud's term for libriform tissue, derived from secondary meristem without genetic affinity with the cambium or vascular bundles; **Pseudoli'chen** (+ Lichen), a Lichen which does not possess an algal layer of its own, but is parasitic on another Lichen-thallus; **Pseudomonocotyle'don** (+ MONOCOTYLEDON), in Dicotyledons the early abortion of one of the cotyledons, as in *Capsella* (Pax); **pseudo-monocotyle'donous** (+ MONOCOTYLEDON), having two or more cotyledons consolidated into a single mass, as in the Horse-Chestnut; ~ **Em'bryo**, having one cotyledon only developed, although two were originally indicated; **Pseu'domorph** (*μορφή*, a form), an unusual or altered form, a term borrowed from mineralogy; **pseudomorphy'tus** (*φυτόν*, a plant), when a capitate inflorescence affects the form of a capitulum of Compositae; **Pseudonemathe'cium** (+ NEMATHECIUM), a thread-like body in certain Algae, which is now stated to be a parasitic Alga, *Actinococcus subcutaneus*, K. Rosenv. (Darbishire); **Pseudonod'ule** (+ NODULE), a space on a Diatom valve devoid of markings resembling a nodule, but not thickened; **Pseudonu'cleole** (+ NUCLEOLE), described by Rosen as a cyanophilous nucleole; **Pseudopar'asite** (+ PARASITE), a false parasite, either (*a*) a SAPROPHYTE, or (*b*) an EPIPHYTE; **Pseudoparench'yma** (+ PARENCHYMA), symphyogenetic cellular tissue; *cf.* PLECTENCHYMA; adj. **pseudoparenchy'matous**; **Pseudoper'ianth** (+ PERIANTH), the cup-shaped envelope of the archegonium which develops after fertilization in certain Hepaticae; **Pseudoperid'ium** (+ PERIDIUM), the outer envelope of a sporophore in Uredineae; **Pseudoperithe'cium** (+ PERITHECIUM), a covering of sporidia resembling a perithecium; **Pseudoplasmo'dium** (+ PLASMODIUM), the protrusion of the protoplasm of an amoeboid body, which may be drawn in or may absorb the whole in itself; **Pseudopod'ium** (+ PODIUM), (1) a temporary changeable foot-like protrusion of protoplasm in the plasmodium of Myxogastres; (2) the stalk-like extremity of the oophyte bearing a sporogonium or gemmae in Mosses, etc.; **Pseudopyre'nium** (+ PYRENIUM), the perithecium of "certain Fungals"; (Lindley); **Pseudora'mulus** (+ RAMULUS), a spurious branch in certain species of *Nostoc*, a young filament adherent to an older one for part of its length; **Pseudora'phe** (+ RAPHE), an apparent raphe in Diatoms, a transitional form towards its entire disappearance; **Pseudoreduc'tion** (+ REDUCTION), the period of tetrad formation in nuclear division (Rueckert); **Pseu'dorhize** (*ῥίζα*, a root), (1) a root shaped like a turnip or carrot in bulbous Monocotyledons (Royer); (2) a root-like mycelial structure which develops at the base of a carpophore from its cells (Fayod); **Pseu'dosperm**, *Pseudosper'mium* (*σπέρμα*, a seed), any fruit which is indehiscent and resembles a seed, as the "nuts" or carpel

of Labiatae, adj. **pseudosper'mic**; *pseudosper'micus*; **pseudosper'mous**; **Pseudosporan'ge**, **Pseudosporan'gium** (+SPORANGIUM), an organ producing gemmae or propagula, a simulated sporangium (Davis); **Pseud'ospore** (*σπορά*, a seed), a gemma or asexual vegetative bud; **Pseu'dostele** (+STELE), when a petiole assumes the conditions of a stem, with similar arrangement of tissues (Tansley); **Pseudostau'ros** (+STAUROS), a broadening of the stauros in some Diatoms; **pseudoster'eus** ‡ (*στερεός*, solid), partly grown together, as the bud-scales of the crown-imperial; **Pseudostro'ma** (+STROMA), the perithecium of certain Fungi; **Pseudosyn'carp** (+SYNCARP), a collective fruit; *cf.* SYNCARP; **Pseudothal'lus** ‡ (+THALLUS), the axis of a crowded inflorescence as a Glomerule or Umbel; **Pseudotrich'ophore** (+TRICHOPHORE), a vegetative filament of Algae, which simulates a trichophore; **Pseudovivip'ary** (+VIVIPARY), the production of leafy rooting shoots in the floral region, side by side with the flowers, as in *Juncus bufonius*, Linn. (Potonié); **Pseu'do-yeast** (+YEAST), any yeast which does not produce fermentation; **Pseudozy'gospore** (+ZYGOSPORE) = AZYGOSPORE.

**psilo-** (*ψιλός*), a Greek prefix, usually meaning slender, but more correctly used for bare or naked, as **psilostach'ys**, which is cited by A. Gray as bare-spiked, under the form *psilostach'yus*.

**Psychoph'ilae** (*Psyche*, *φιλέω*, I love), plants which are fertilized by diurnal lepidoptera, possessing brightly coloured flowers, with honey in the flower-tube.

**Psychrokli'ny** (*ψύχρος*, cold, *κλίνω*, I incline), Voechting's term for the behaviour of growing parts under the influence of low temperatures; **psychromet'ric** (*μέτρον*, a measure), applied by Pfeffer to the hygrometric movements of plants (Voechting).

**psydomorphyt'us** = PSEUDOMORPHYTUS.

**Pteram'pelid** (*πτέρις*, a fern, *ἄμπελος*, a vine), any climbing Fern (J. Smith).

**ptera'tus** (*πτερόν*, a wing), winged; **Pterid'ium**, **Pterid'ies** = SAMARA.

**Pteridograph'ia** (*πτερίς*, *πτερίδος*, a fern, *γραφή*, a writing), a treatise on Ferns, or the science of Ferns; shortened by J. Smith to **Pterigraph'ia**; **Pterig'raphist**, and **Pterigraph'ilist** (*φιγέω*, I love), a writer on Ferns; **pter'idoid** (*εἶδος*, resemblance), used by E. Newman for Fern-like, as ~ **Ac'rogens**; **Pter'idophyte** (*φυτόν*, a plant), a Fern, or closely allied plant.

**pterig'ynus** (*πτερόν*, a wing, *γυνή*, a woman), wing-seeded; **pterocar'pous**, *-pus* (*καρπός*, fruit), wing-fruited; **pterocau'lous**, *-lis* (*καυλός*, a stem), wing-stemmed; **Ptero'dium**, = SAMARA; **pterogo'nus** (*γωνία*, an angle); **pter'oid**, *pteroi'deus* (*εἶδος*, resemblance), (1) having an elevation of surface assuming a wing-like appearance; (2) J. Smith uses "pteroid" for Fern-like; **pterop'odous** (*πούς*, *ποδός*, a foot), wing-footed, the petiole being marginally winged; **pterosper'mous**, *-mus* (*σπέρμα*, a seed), with the seeds winged; **pteryg'ynus** (*γυνή*, a woman), wing-seeded.

**Pteryg'ium** (*πτερύγιον*, a little wing), a wing.

**pteryg'opous**, *-pus* (*πτέρυξ*, a wing, *πούς*, *ποδός*, a foot), having the peduncle winged; **pterygosperm'ous**, *-mus* (*σπέρμα*, a seed), = pterospermous.

**Pto'maïne** (*πτῶμα*, calamity, corpse), used of any alkaloid due to the activity of pathogenous bacteria.

**Pty'alin** (*πτύαλον*, saliva), a ferment contained in saliva which transforms starch into a sugar capable of fermenting.

**Pty'chode**, *Ptycho'des* (*πτύξ*, *πτυχός*, a fold), the primordial utricle;

**Ptychoi'des** (*εἶδος*, resemblance), the outer surface of the same (Hartig).

**Ptyx'is** (*πτύξις*, a folding), vernation.

**pu'bens** (Lat., arrived at puberty) = pubescent; **puber'ulus** (dim. of Lat. *puber*, downy, ripe), slightly hairy; **Pu'ber** (Lat.), maturity, as of flower or fruit; **Pu'berty**, *Pu'bertas*, the transition from a young state to maturity of function; **Pu'bes** (Lat.), **Pubes'cence**, the hairiness of plants; **pubes'cent**, *pubes'cens*, clothed with soft hair or down; **pu'bera** [**Ae'tas**], the period in a fruit succeeding the fertilization of the ovules; **pubig'erous** (*gero*, I bear), pubescent.

**Puf'fing**, the emission of spores in a cloud; the equivalent of the German "Stäuben."

**pugio'niform**, *pugioniform'is* (*pugio*, a dagger, *forma*, shape), dagger-shaped.

**pulla'tus** (Lat.), clothed in black.

**pulley-shaped**, circular, and compressed in its circumference.

**pul'lulate** (*pullulo*, to bud), to bud, as in spring; **Pullula'tion**, sprouting; especially characteristic of the yeast-plant.

**pul'lus** (Lat., dusky), black or nearly black.

**Pulp**, *Pul'pa* (Lat., the flesh of fruit), the juicy or fleshy tissue of a fruit; **pul'pose**, *pulpo'sus*, pulpy.

**Pulsa'tion** (*pulsatio*, a beating), of vacuoles, the rhythmic increase and decrease of size in naked zoospores and plasmodia.

**pulvera'ceous**, *-ceus*, **pulver'eus** (Lat.), powdery; **pulver'ulent**, *pulverulen'tus* (Lat., dusty), powdered, as if dusted over.

**Pulvil'lum** (Lat.), in botanic gardens, a hot-bed.

**pul'vinate**, *pulvina'tus* (Lat.), cushion-shaped; **pulvin'iform**, *pulviniform'is*, having the shape of a cushion or pad; **Pulvin'ulus**, pl. **Pulvin'ula**, simple or branched excrescences on the surface of some Lichens, soredia; **Pulvi'nus** (Lat., a cushion), an enlargement close under the insertion of a leaf, the swollen base of the petiole as in *Mimosa pudica*, Linn.

**Pul'vis** (Lat.), dust, powder, etc.

**Pulvis'culus** (Lat., small dust), "the powder contained in the spore-cases of some Fungi" (Henslow).

**pu'milus** (Lat., dwarfish), low or little.

**Punc'ta**, pl. of **Punc'tum** (Lat., a point), the marking on the valves of Diatoms; **punc'tate**, *puncta'tus* (Lat.), marked with dots, depressions or translucent glands; *puncta'ta Va'sa* = dotted vessels; **punctiflor'us** (*flos, floris*, a flower), having dotted flowers; **punc'tiform** (*forma*, shape), in the form of a point or dot, reduced to a mere point; **punctic'ulate**, *puncticula'tus*, **puncticulo'sus**, minutely punctate; **Punctum Vegetatio'nis**, the growing point.

**pun'gent**, *pun'gens* (Lat., piercing), ending in a rigid and sharp point, as in a holly-leaf.

**punic'eous**, *-ceus*, crimson.

**pure**, applied to forests, means unmixed, the growth being confined to one form.

**pur'ple**, a secondary tint, a mixture of red and blue in varying proportions.

**purpurar'ius** (Lat.), pertaining to purple; **purpura'tus** (Lat.), empurpled; **purpuras'cens** (Lat.), becoming or turning purple; **purpurel'lus** (Lat.), purplish; **purpu'reus** (Lat.), purple; **Pur'purine**, a colouring principle in madder, *Rubia tinctoria*, Linn.; **purpuri'nus**, (Lat.), somewhat purplish.

**purse-shaped**, pouch-shaped.

**pusil'lus** (Lat., petty), very small, or weak and slender.

**pus'tular** (*pustula*, a pimple), having slight elevations like blisters; **pus'tulate**, *pustula'tus*, as though blistered; **Pus'tule**, a pimple or blister; **pus'tulose**, *pustulo'sus* (Lat.), blistery or pimply.

**Puta'men** (Lat., shells, rind), (1) the shell of a nut; (2) the hardened endocarp of stone-fruit; **putamina'ceus** (+aceus), having the texture of the stone of a drupe.

**Pyc'nid, Pyc'nide, Pycnid'ium**, pl. **Pycnid'ia** (*πυκνός*, dense), a cavity resembling a pyrenocarp in Lichens, etc., containing gonidia (pycnoconidia or stylospores); **Pycnid'iophore** (*φορέω*, I carry), a compound sporophore bearing pycnidia; **pycnoceph'alous** (*κεφαλή*, a head), thick-headed, as when Composite flower-heads are clustered closely; **Pycnid'iospore** (*σπορά*, a spore), a spore produced in a pycnidium; **Pycnoconid'ium** (+ CONIDIUM), a conidium produced in a pycnidium, a stylospore; **Pycnogonid'ium** (+GONIDIUM) = PYCNOCONIDIUM; **Pyc'nospore** (*σπορά*, a seed) = PYCNOCONIDIUM; **pycnos'tachous** (*στάχυς*, a spike), in compact spikes.

**pygmae'us** (Lat.), dwarf, pygmy.

**pyogenet'ic** (*πῦον*, pus, *γένεσις*, beginning), pus-forming, the function of certain bacteria.

**pyracan'thus** (*πῦρ*, fire, *ἄκανθα*, a thorn), with red or yellow spines.

**pyram'idal**, *pyramida'lis* (Lat.), pyramid-shaped.

**Py'rene**, *Pyre'na* (*πυρήν*, kernel or stone), (1) a nucule or nutlet; (2) a small stone of a drupe, or similar fruit; **Pyrenar'ium**, a pear-fruit, pome-like, but tapering; **Pyrena'rius**, a drupaceous pome, as in *Crataegus*; **Pyre'nin**, Schwarz's term for the constituent of the body of the nucleus; *cf.* AMPHIPYRENIN; **Pyre'nium**; an old name for the receptacle of Sphaeriaceous Fungi; **Pyre'nocarp** (*καρπός*, fruit) (1) = PERITHECIUM; (2) = DRUPE; adj. **pyrenocar'pous**; **pyreno'deous** (*εἶδος*, resemblance), like a pyrenoid, wart-like; **pyreno'dine**, "globular and nuclear" (Leighton); **Py'renoid** (*εἶδος*, resemblance), minute rounded granular colourless bodies, embedded in the chromatophores, amylum-centres (Schmitz); **Pyrenoli'chenes** (+Lichen), Wainio's term for **Pyrenomy'cetes**, that is, Fungi possessing perithecia.

**Pyrid'ion** (*pyrus*, or *pirus*, a pear), used by Linnaeus for the pear-fruit, a tapering pome; **pyrif'erous** (*fero*, I bear), pear-shaped; **py'riform**, *pyriform'is* (*forma*, shape), resembling a pear in shape.

**pyx'idate**, *pyxida'tus* (Lat., box-like), furnished with a lid, as some capsules; **Pyxid'ula** ‡ = **Pyxid'ium**, Moench's term for the fruit of *Amaranthus*, a dehiscent capsule, sometimes used for the following: **Pyx'is**, (1) a capsule with circumscissile dehiscence, the upper portion acting as a lid; (2) ‡ the theca of a Moss; (3) "the same as Scyphus" (Lindley).

**quadran'gular**, *quadrangular'is* (Lat.), four-cornered; **quadran'gulus, quadrangula'tus** (Lat.), having four angles, which are usually right angles.

**Quad'rant** (*quadrans*, a fourth part), the quarter of an oospore, which is so divided by the ~ **Wall**; **quadricap'sular** (+CAPSULA), having four capsules; **quadricotyledo'neus** (+ COTYLEDON), apparently with four cotyledons, each normal cotyledon being divided to the base; **quadricru'ral**, *quadricru'ris* (*crus, cruris*, a leg), with four supports; **quadriden'tate** (*dentatus*, toothed), having four teeth; **quadridigita'to-pinna'tus** (*digitus*, a finger), with four digitate divisions, each of which is pinnate; **quadridigita'tus**, divided into four divisions; **Quadriere'mus** (+ EREMUS) = COENOBIUM; **quadrifar'ious**, *-rius* (Lat., fourfold), in four ranks, as leaves; **quad'rifid**, *quadrif'idus* (Lat.), four-cleft, to about the middle or below; **quad'rifoil** (*folium*, a leaf) = **quadrifo'liate**, when the petiole bears four leaflets at the same point; **quadrifo'liolate**, strictly, with four subordinate leaflets, but sometimes

used as an equivalent of quadrifoliate ; **quadrifur'cate** (*furcatus*, forked), dividing into four branches ; **quadrigem'inate** (*geminus*, a twin), growing in fours ; **quadrihila'tus** (+ HILUM), having four apertures, as in some pollen-grains ; **quadrij'ugate**, *quadrijuga'tus*, **quadrij'ugous**, *-gus* (*jugum*, a yoke), having four pairs of leaflets ; **quadrilo'bate** (*lobus*, a lobe), with four lobes ; **quadriloc'ular**, (*loculus*, a little space), having four cells, as some anthers ; **quad'rinate**, *quadrina'tus*, **quadri'nus**, with four leaflets at the end of a petiole, in a digitate arrangement ; **quadrinu'cleate** (+ NUCLEUS), used of a cell with four nuclei, from the division of a binucleate cell ; **quadripar'tite**, *quadriparti'tus* (*partitus*, divided), four-cleft, nearly to the base ; **quadriphyl'lous** (*φύλλον*, a leaf) = quadrifoliate ; **quadripo'lar** (*polus*, a pole), in nuclear division, when four daughter nuclei arise at the same time ; **quadriv'alent** (*valeo*, to be effective), applied to a cell which divides into four daughter cells ; *cf.* BIVALENT (in Add.) ; **quad'rivalve**, **quadrivalv'ular** (*valva*, a door-leaf), four-valved.

**quaquaver'sal** (*quaqua*, wheresoever, *verso*, I turn round), directed or bending in every direction.

**Quar'tospore** (*quartus*, fourth, *σπορά*, a seed), C. Macmillan's term for a spore enclosing protective and more or less vegetative cells as in *Riccia* ; **Quar'tine**, a fourth integument of some ovules, "in reality a mere layer of either the secundine or" nucellus (Lindley).

**quasiradia'tus** ‡ (*quasi*, as though, *radiatus*, spoked), slightly radiant, as where the florets of the ray in some Compositae are small and inconspicuous.

**Quas'sine**, a bitter principle in quassia wood.

**quater'nary**, **quater'nate**, *quaterna'tus* (*quaternarius*, consisting of four), an arrangement in fours ; **quater'ni** (Lat., by fours), growing four together.

**Quer'cite**, a glucoside derived from acorns, sweet like sugar, but not fermenting with yeast.

**Quer'citrin**, a glucoside in quercitron bark ; its colouring matter, and a commercial dye-stuff.

**Quetelet-Galton Curve**, see NEWTONIAN CURVE.

**quilled**, normally ligulate florets which have become tubular.

**qui'nary** (*quini*, five each), in fives ; **qui'nate**, *quina'tus*, growing together in fives, as leaflets from the same point.

**Quin'ia**, **Quinin'**, or **Quinine'**, an alkaloid occurring in the bark of species of *Cinchona*, *Remija*, etc.

**quincun'cial** (*quincuncialis*, containing five-twelfths), (1) arranged in a quincunx ; (2) in aestivation partially imbricated of five parts, two being exterior, two interior, and the fifth having one margin exterior, the other interior, as in the calyx of the rose ; **Quin'cunx** (Lat., the fraction $\frac{5}{12}$), (1) an arrangement like the five on dice, four at the corners, and one in the centre ; (2) in five ranks, quinquefarious ; (3) "the disposition of objects so that the intervening spaces are all hexagons" (Crozier).

**Quinin'**, see QUINIA.

**Quin'icine** and **Quin'idine**, alkaloids from *Cinchona* bark.

**quinquan'gular**, *quinquangular'is* (*quinquangulus*, five-cornered), five-angled ; **quinquecap'sular** (+ CAPSULA), with five capsules ; **quinquecos'tate** (*costatus*, ribbed), having five ribs ; **quinqueden'tate** (*dentatus*, toothed), with five teeth ; **Quinquere'mus** (+ EREMUS), a five-celled gynobasic fruit, as *Gomphia* ; **quinquefar'ious**, *-rius* (*fariam*, suffix = rank), in five ranks ; **quin'quefid** (*fid*, the root of *findo*, I cleave), five-cleft ; **quinquefo'liate**, *quinquefolia'tus* (*quinquefolius*, five-leaved), with five leaves ; **quinquefo'liolate**, *quinquefoliola'tus*, with five leaf-

lets ; **quinquej'ugate** (*jugum*, a yoke), in five pairs, as of leaflets ; **quinquelo'bate** *quinqueloba'tus* (*lobus*, a lobe), five-lobed ; **quinqueloc'ular**, *quinquelocularis* (*loculus*, a little space), five-celled ; **quinquener'ved**, *quinquener'vis*, *-vius* (*nervus*, a nerve), the midrib dividing into five, that is, the main rib, and a pair on each side ; **quinquepar'tite**, *quinqueparti'tus* (*partitus*, divided), deeply divided into five parts ; **quinqueval'vate, quin'quevalve**, *quinqueval'vis* (*valva*, a door-leaf), five-valved ; **quinquevein'ed**, "the same as quinquenerved" (Crozier).

**Quin'tine**, *Quinti'na* (*quintus*, the fifth), a supposed integument of an ovule, the fifth from the outside, "in reality the skin of the" nucellus (Lindley) ; **Quin'tospore** (*σπορά*, a seed), C. Macmillan's term for a spore which has attained sexual potentiality, as in vascular Cryptogams and Phanerogams.

**quin'tuple, quin'tupled** (*quintuplex*, five-fold), multiplied by five ; **~ -nerved**, quinquenerved; **~ ribbed**, quinquecostate ; when of five ribs the four lateral arise from about the base of the mid-rib ; **quintupliner'ved, quintuplivein'ed**, quinquenerved, five-veined.

**Rab'doid** (*ῥαβδος*, a rod) = RHABDOID.

**Race**, (1) a variety of such fixity as to be reproduced from seed ; (2) used also in a loose sense for related individuals without regard to rank.

**Racema'tion** (*racematio*, the gleaning of a vineyard), a cluster, as of grapes ; **Raceme'**, *Race'mus* (Lat., a bunch of grapes), an indeterminate or centripetal inflorescence with lengthened axis, and equally pedicellate flowers ; **racemif'erous** (*fero*, I bear), bearing racemes ; **racemiflor'us** (*flos*, *floris*, a flower), flowers borne in a raceme ; **race'miform**, *racemiform'is* (*forma*, shape), in the form of a raceme ; **rac'emose**, *racemo'sus*, **rac'emous**, having racemes, or raceme-like ; **race'mulose**, *racemulo'sus*, a diminutive of the last, somewhat racemose ; **Rac'emule**, a small raceme.

**rachemor'phus** (Lindley) = RACHIMORPHUS.

**Rachil'la** = RHACHILLA.

**rachimor'phus** (*ῥάχις*, the backbone, *μορφή*, shape), the small zigzag flowering axis of some grasses, as *Rottboellia*.

**Ra'chis** = RHACHIS ; **Ra'cheae**, used by J. Smith as the plural of Rachis ; **ra'chiform** = RHACHIDIFORM ; **Rachi'tis**, in botany, a disease producing abortion in the flower or seed.

**recur'rent** (*recurrens*, running back), in venation, when the veinlets return towards the main rib.

**ra'dial**, *radia'lis* (*radius*, the spoke of a wheel), (1) radiating, as from a centre ; (2) belonging to the ray, as in the flowers of Composites ; **~ Bun'dle**, a bundle or stele which has strands of bast and wood in different radii, a frequent occurrence in roots ; **~ Plane**, any plane which passes through the axis of growth, and cuts the surface at right angles ; **ra'diar**, a system of branching uniformly on all sides (Goebel) ; **ra'diant**, *rad'ians*, radiating as from a centre ; **~ Um'bel**, when flowers on the outside are conspicuously larger than those which form the rest of the umbel ; **ra'diate**, *radia'tus*, (1) spreading from or arranged round a common centre, as the circumference of a circle ; (2) bearing rays, or ray-florets ; **~ -veined** = palmately veined ; **ra'diating**, passing in a straight line from the centre ; **radia'tiform**, *radiatiform'is* (*forma*, shape), when the ligulate florets of Compositae increase in length outwards ; **radia'tim** (Lat.), in a radiate manner.

**rad'ical**, *radica'lis* (*radix*, *radicis*, a root), arising from the root, or its

crown; **rad'icant**, *radi'cans* (Lat., striking root), rooting, usually applied to stems or leaves; **rad'icated**, having a root or roots (Crozier); **rad'icating**, rooting; **Radica'tion**, *Radica'tio*, the root-system of a plant, its disposition and branching; **radica'tus** (Lat.), possessing roots, especially a tap-root; **Rad'icel**, *Radicel'la*, = RADICULA; **Radicella'tio** (Lat.), = RADICATION; **radicic'olous**, *-la* (*colo*, I inhabit), (1) when the flower is seated immediately upon the crown of the root; (2) dwelling in the root as a parasite; **radicif'erous** (*fero*, I bear), root-bearing, or rooting, as prostrate stems; **radiciflor'ous**, *-rus* (*flos*, *floris*, a flower), flowering apparently from the root; **radic'iform** (*forma*, shape); **radici'nus** (Lat.), of the nature or appearance of a root; **Rad'icle**, *Radi'cula*, the hypocotyledonary and primal internode, the rudimentary root of the embryo; **Radi'cula byssoi'dea**, the mycelium of Fungi; **rad'icose**, *radico'sus* (Lat., having many roots), having large or abundant roots; **radic'ular**, pertaining to the radicle; **radiculiform'is** (*forma*, shape), shaped like a radicle; **Radiculo'da**, **Radiculo'dium**, the apex of the radicle in grasses; **radic'ulose**, *radiculo'sus*, bearing rootlets.

**Ra'dius**, pl. **Ra'dii** (Lat., a ray), (1) the ray of Compositae, the outermost florets when distinct in form from those composing the disk; (2) a partial umbel in Umbelliferae; (3) the structures known as medullary rays; ~ **medulla'ris** = MEDULLARY RAY.

**Ra'dix**, pl. **Radi'ces** (Lat., a root), the root or descending axis, the developed radicle.

**Raf'fia**, **Raph'ia**, or **Rof'fia**, the native Malagasy names for the fibre-like material obtained from the leaves of *Raphia peduncula*, Beauv., and *R. vinifera*, Beauv.

**Raf'finase** (Fr. raffiner, to refine), an enzyme which decomposes **Raf'finose**, a sugar occurring in beet, and germinating cereals.

**Rain-leaves**, those which are adapted to shed the rain from their surfaces, and generally acuminate, *cf.* DRIP-TIP.

**ra'mal** (*ramus*, a branch), belonging to a branch; **Ramas'trum** ‡ (*-astrum*, a suffix, = likeness), a secondary petiole or petiolules of compound leaves; **ra'meal**, *ramea'lis*, pertaining to a branch; **ramear'ius**, restricted to aërial roots, which arise from branches (Henslow).

**Ramen'ta**, pl. of **Ramen'tum** (Lat., scrapings, shavings), thin chaffy scales of the epidermis, as the scales of many Ferns; **Ra'ments**, = RAMENTA; **ramenta'ceous**, *-ceus* (+aceous), possessing ramenta, clothed with them.

**ra'meous**, *ra'meus* (Lat.), belonging to a branch.

**Ramie'** (Fr.), the fibre of Rhea, *Boehmeria tenacissima*, Hook. & Arn.

**ramif'erous**, *-rus* (*ramus*, a branch, *fero*, I bear), bearing branches, ramose; **Ramifica'tion**, *-tio* (*facio*, I make), the scheme of branching or separation into branches; **ramifica'tus** (Lat.), branched; **ramiflor'ous**, *-rus*, (*flos*, *floris*, a flower), flowering on the branches; **ra'miform**, *ramiform'is* (*forma*, shape), shaped like a branch; **ramip'arous** (*pario*, I bring forth), producing branches, ramose; **ra'millary**, term employed by Massart for those buds of climbers which develop into short branches, fruit or leaves, *cf.* SARMENTARY; **ra'mose**, *ramo'sus*, **ra'mous**, branching, having many branches; **ramosis'simus**, very much branched; **ram'ify**, to branch; **Ra'mulet**, used by Grew for the vascular strands in the shell of a nut; **ra'mulose**, *ramulo'sus*, having many branchlets; **Ra'mulus** (Lat.), a branchlet; **Ramun'culus**, a twig, the ultimate division of a branch; **Ra'mus** (Lat.), a

branch ; **Ramus'culum** (Lat.), *-lus*, (1) the same as ramulus, a branchlet; (2) ‡ "the mycelium of certain Fungals" (Lindley).

**Range**, the region over which a given form grows spontaneously.

**Rank**, a row, especially a vertical row.

**rapa'ceus** (*rapum*, a turnip), fusiform or turnip-shaped.

**Ra'phe**, pr. ra'phy, *Raph'a* (ῥαφή, a seam), (1) in a more or less anatropous ovule a cord or ridge of fibro-vascular tissue connecting the base of the nucellus with the placenta, the adherent funicle ; it may occur on the side of the ovule turned to the axis (ventral), or on the external face of the ovule, that is dorsal; (2) in Diatoms, the median line or rib of a valve, and may be heteropolar or isopolar (O. Mueller) ; (3) the suture between the carpels in Umbelliferae (Crozier).

**Raph'id**, pl. **Raph'ides**, *Raph'ida*, or **Rhaph'ides** (ῥαφίς, ῥαφίδος, a needle), needle-shaped crystals in the cells of plants ; **raphid'ian**, pertaining to raphides ; ~ **Cell**, one which contains raphides ; **Raph'idines**, Radlkofer's term for free, needle-shaped cells, with partly lignified cellulose-walls, occurring amongst phloëm-islands in certain Acanthaceae ; **raph'ioid** (εἶδος, resemblance) **Fi'bres**, Roulet and Chodat's term for the preceding.

**rare-ripe**, early ripe, precocious ; **rath-ripe** (Crozier) means the same.

**ra'rus** (Lat., not close or thick), thinly placed, not congested.

**Ratoon'**, a shoot from the root of a plant which has been cut down (Crozier).

**Raumpar'asit** (Germ.) = AULOPHYTE.

**raven - black**, in Latin *pullus*, *coracinus*.

**ra'vidus**, **ra'vus** (Lat.), grey or tawny, applied to doubtful tints.

**Ray**, *Ra'dius*, (1) the marginal portion of a Composite flower, when distinct from the disk ; (2) a branch of an umbel, a partial umbel ; ~ **Flo'ret**, ~ **Flow'er**, an outer floret, ligulate or tubular, of Compositae.

**Recaules'cence** (*re*, back, + Caulescence), the adnation of leaves on their stalks to the stem (C. Schimper).

**Recep'tacle**, *Recepta'culum* (Lat., a reservoir), (1) that part of the axis which bears one or more organs, the torus ; (2) in Fungi, variously applied, usually a hollow or cup-like body containing other bodies, as (*a*) Leveillé's term for a sporophore ; (*b*) = STROMA ; (*c*) an apothecium in Ascomycetes ; (*d*) a pycnidium ; (*e*) the inner portion of the sporophore supporting the gleba in Phalloideae ; (*f*) a cup of the Lichen-thallus, which contains soredia ; (3) the placenta ; ~ **of a Flow'er**, the axile part of the blossom which supports the sepals, petals, stamens and pistils ; ~ **of Inflores'cence**, the rhachis or axis of the head, spike, or other dense cluster ; ~ **of Oil**, a cyst containing an oily secretion, as in the rind of an orange ; ~ **of Secre'tion**, any cavities of the interior containing special products ; **Recepta'cula accidenta'lia**, indeterminate passages filled with secretion ; ~ **caeciform'ia**, ‡ the vittae of the fruit of Umbelliferae ; ~ **Suc'ci prop'rii** ; ~ **tubulo'sa**, = CINENCHYMA, laticiferous vessels ; ~ **vesiculo'sa**, receptacles of oil ; **receptac'ular**, *receptacular'is*, pertaining to the receptacle, or attached to the receptacle ; ~ **Tube**, the calyx-tube.

**recep'tive** (N. Lat. *receptivus*), having the quality of receiving ; ~ **Spot**, (1) the point in the oosphere of Ferns, etc., where the antherozoids enter ; (2) that hyaline spot on a large planogamete where it will coalesce with a small (male) planogamete.

**Recess'**, = SINUS.

**recip'rocal** (*reciprocus*, going backward and forward), mutual ; ~

**Hy'brids**, hybrids between the same parents, each being fertilized by the other.

**rec'linate**, *reclina'tus* (Lat., bent back), turned or bent downward; **recli'ned**, **recli'ning**, having its base on the ground, also one plant pressed on another.

**reclu'sus** (Lat., laid open), improperly used for *inclusus*.

**recon'ditus** (Lat., concealed), hidden, not readily seen.

**Recrudes'cence** (*recrudesco*, to open afresh), the production of a young shoot from a ripened infructescence.

**rectiflo'rus** (*rectus*, straight, *flos*, *floris*, a flower), where the axes of the florets are parallel to the main axis of the inflorescence, as in some Compositae; **rectiner'ved**, *rectiner'vis*, *-vius* (*nervus*, a nerve); **rective'nius** (*vena*, a vein), straight-veined, parallel-veined, as in grasses; **Rectipetal'ity** (*peto*, I seek), Voechting's term to express the tendency of organs to grow in a straight line; **rectise'rial** (*series*, a row), in straight ranks; **rec'tus**, in a right line, straight, not curved.

**recur'vate**, **recur'ved**, *recur'vus* (Lat., bent back), curved backward or downward.

**recuti'tus** (Lat., skinned), apparently bare of epidermis.

**red**, a general term for the most vivid of the primary colours, in Latin *ruber*; ~ **-brown**, *porphyreus* according to Lindley; ~ **Snow**, discolouration of snow by *Haematococcus nivalis*, Agardh, etc.

**Redu'ced Ves'sels**, a term used by Rothert for (*a*) replacement of bordered pits by simple pits, (*b*) an incomplete development of the thickening bands and their looser arrangement.

**Reduc'tion** (*reductio*, a leading back), diminution, as of the number of chromosomes in nuclear division; ~ **Divis'ion** = NUCLEAR REDUCTION.

**redu'plicate**, *reduplica'tus* (Lat., doubled) = **redu'plicative**, *reduplicati'vus*, doubled back, a term of aestivation when the edges are valvate and reflexed; **Reduplica'tion**, an increase of parts by the insertion of additions on the same plan, as of whorls, etc.

**reflec'ted** (*reflecto*, I bend back), reflexed.

**reflexed'**, *reflex'us* (Lat., bent back), abruptly bent or turned downward or backward; **Reflex'ion**, a teratological change in position.

**Reflores'cence** (*refloresco*, to blossom anew), flowering again, a second blossoming.

**refract'ed**, *refrac'tus* (Lat., broken), bent sharply from the base backward.

**Regenera'tion** (*regeneratio*, a reproduction), vegetative growth after amputation and the drying of the wound.

**Regermina'tion** (*regermino*, I sprout again), resumption of germination after it has been completely interrupted (L. H. Bailey).

**Re'gion**, the area occupied by given forms; ~ **of Distribu'tion**, Watson's term for the British regions defined by him.

**Re'gma** (*ῥῆγμα*, a fracture), a fruit with elastically opening segments or cocci, as in *Euphorbia*, a form of schizocarp; **Re'gmacarp**, *Regmacar'pium* (*καρπός*, fruit), a general name for a dry and dehiscent fruit.

**Regres'sion** (*regressio*, a retreat), Galton's term for REVERSION; **regres'sus** (Lat., gone back), (1) the same as REFLEXUS; (2) the change from one organ into that which preceded it, as of petals into sepals.

**reg'ular**, *regula'ris* (Lat., according to rule), uniform or symmetrical in shape or structure; of a flower, actinomorphic; ~ **Pelo'ria**, peloria which have not produced their normal irregular parts; **regulariflor'ous** (*flos*, *floris*, a flower), when a disk or head of Compositae contains only tubular florets; **regulariform'is** (*forma*, shape), approximating regularity; **Regular'ity**, symmetry.

**Rejec'tion-nu'clei**, pl., certain nuclei which do not become part of the functional oospheres, the nuclei of abortive oospheres (Hartog).

**Rejuvenes'cence** (*re*, back, *juvenesco*, I grow young), the formation of a new cell from the protoplasm of a cell already existing; **metagam'etal** ~, see METAGAMETAL REJUVENESCENCE.

**Reliq'uiae** (Lat., leavings) = INDUVIAE.

**remote'**, *remo'tus* (Lat., distant), scattered, not close together, the same as *rarus*.

**renar'ius** (*renalis*, pertaining to the kidneys), reniform.

**Renew'al**, the act of forming anew; ~ **of Cells** = REJUVENESCENCE.

**re'niform**, *reniform'is* (*renes*, the kidneys, *forma*, shape), kidney-shaped; *reniform'i-corda'tus*, combined heart and kidney shape, as the leaves of *Asarum europaeum*, Linn.

**Ren'net, veg'etable**, an enzyme which curdles milk, found in the flowers of *Galium verum*, Linn., and other plants.

**Repair'**, making good, as ~ of **Waste**, restoring the spent material.

**repand'**, *repan'dus*, **repan'dous** (Lat., bent backwards), with slightly uneven margin, less so than "sinuous."

**re'pent**, *re'pens* (Lat., creeping), prostrate and rooting.

**Repla'cement**, a theory of fertilization which assumes that the female cell gets rid of certain elements which leaves it an imperfect cell until fusion with the male cell replaces them.

**Reple'tum** (*repletus*, filled), a fruit with the valves connected by threads, persistent after dehiscence, such as in Orchids, *Aristolochia*, and some Papaveraceae.

**rep'licate**, *replica'tus* (Lat., folded back), doubled down, so that the upper part comes against the lower; **rep'licative**, *replicati'vus* = replicate.

**Re'plum** (Lat., door-case), (1) a frame-like placenta from which the valves fall away in dehiscence; (2) frequently used so as to include the septum of Cruciferae in the term.

**Reproduc'tion**, increase (*a*) asexually from one individual, (*b*) sexually from two individuals or organs; **reproduc'tive**, applied to parts which share in reproduction; ~ **Cells**, cells which have no power of further vegetative development, but by coalescence give rise to a product which forms the starting point of a new plant; ~ **Or'gans**, the parts especially concerned in the production of seeds, spores, and analogous bodies; in Phanerogams, the stamens and pistils.

**rep'tant**, *rep'tans* (Lat., crawling), REPENT; creeping on the ground and rooting.

**Res herba'ria** (Lat.), the science of plants; botany.

**Reserve'** (*reservus*, laid up), a storage; ~ **Cel'lulose**, a special thickening in the cells of seeds, such as the date, which can be turned to account in germination as food material; ~ **Mate'rial**, the plastic products of metabolism, assimilated food material in a resting condition, as starch and other carbohydrates; ~ **Pro'teid**, nitrogenous substances stored in the plant, as proteids, amides, etc.; ~ **Tra'cheids**, tracheid-like cells from the parenchyma sheath, for the storage of water (Heinricher).

**resil'ient** (*resiliens*, springing back), springing or bending back, as some stamens.

**Res'in** (*resina*, rosin), a term applied to a group of oxydised hydrocarbons, solidified or hardened turpentine, and insoluble in water; ~ **Cell**, a cell which secretes resin; ~ **Ducts**, canals which contain fluid resin; ~ **Flux**, an unnatural and abundant flow of resin caused by the attack of *Armillaria mellea*, Sacc. on Conifers; ~ **Gland**, a group of cells which form resin; ~ **Glut** = RESIN-FLUX; ~ **Pas'sage**; ~ **Tube**, an intercellular passage containing

resin, a resin-duct ; **resinif'erous**, *-rus* (*fero*, I hear), secreting resin ; **Res'inocyst** (*κύστις*, a bag), hemispheric structures in the cell-wall of the hairs of the stem and leaf of *Begonia* (Schoennett) ; **Resino'sis** = RESIN-FLUX.

**Respira'tion** (*respiratio*, breathing), the gaseous interchange between the plant and the air in which the plant absorbs oxygen, and gives off carbon dioxide ; **Insula'tion** ~, the plant gives off oxygen in the decomposition of vegetable acids ; **Inter'nal** ~, gives off carbon dioxide, but does not absorb free oxygen, as in yeast-fermentation ; **Nor'mal** ~, as defined ; **Vincula'tion** ~, oxygen is absorbed, but no carbon dioxide is given off; it occurs in the early stages of germination of oily seeds (Detmer) ; adj. **respi'ratory**, as ~ **Cav'ity**, ~ **Cham'ber** = STOMATIC CHAMBER.

**res'tant** (Crozier) ; *res'tans* (Lat., standing still), persistent.

**restib'ilis** (Lat., restored), perennial.

**res'ting**, in a dormant state ; ~ **Cell**, an isolated cell which has passed into a quiescent state ; ~ **Nu'cleus**, a nucleus not in the act of division ; ~ **Pe'riod**, the time during which dormancy is maintained, the involution period ; ~ **Sporan'gium**, dormant gonidia of such Fungi as *Saprolegnia*, which ultimately give rise to swarmspores ; ~ **Spore**, a spore with a thick integument, needing time before germinating, usually passing the winter or dry season in a dormant state ; ~ **Stage**, the resting period ; ~ **State**, quiescence, as of winterspores, or dormant bulbs.

**resu'pinate**, *resupina'tus* (Lat., bent back), upside down, or apparently so, as when the hymenium of a Fungus is uppermost.

**Resurrec'tion Plants**, those which after being dried, when placed in water assume their living position, as *Anastatica* and *Selaginella lepidophylla*, Spring.

**Retarda'tion**, the influence of light on growth in certain structures.

**Re'te** (Lat., a net), network ; **retic'ulate**, *reticula'tus*, netted like network, as in certain cell-thickening ; ~ **veined**, netted veined ; **reticula'ted Ves'sel**, one with netted thickenings (Crozier) ; **Reticula'tion**, network, the regular crossings of threads ; **Retic'ulum** (Lat., a little net), (1) a membrane of cross-fibres found in Palms at the base of the petiole ; (2) applied to the network of linin in the nucleus ; **retif'erus** ‡ (*fero*, I bear), **re'tiform**, *retiform'is* (*forma*, shape), apparently netted.

**retinacula'tus** (Lat.), hooked ; **Retina'culum** (Lat., a tether), (1) the gland to which one or more pollinia are attached in Orchids ; (2) in Asclepiads, a horny elastic body to which the pollen-masses are fixed, the Corpusculum of Bentham, Pollen-carrier of N. E. Brown, Translator of the Germans ; (3) the funicle in most Acanthaceae, which is curved like a hook, and retains the seed till mature.

**retiner'ved**, *retiner'vis*, *retiner'vius* (*rete*, a net, *nervus*, a nerve), net-veined.

**retrac'tus** (Lat., drawn back), when cotyledons are so far prolonged at their base as to completely hide the radicle.

**Retort' Cells**, special enlarged cuticular cells with an apex more or less recurved in *Sphagnum*.

**retrocur'ved**, *retrocur'vus*, *retrocurva'tus* (*retro*, backward, *curvus*, curved), recurved, bent back ; **retroflex'ed**, *retroflex'us* (Lat.), bent back, reflexed ; **retrofrac'ted**, *retrofrac'tus* (Lat.), refracted.

**Retrogres'sion** (*retrogressus*, a movement backward), reversion or development towards simpler organisation ; **retrogres'sive**, decadent in structure; ~ **Metamorph'osis**, in teratology the occurrence of organs of lower grade in place of the normal structures, as

pistils converted into stamens or petals.

**retrorse'**, *retror'sum* (Lat.), directed backward or downward; **retror'sely acu'leate**, with prickles turned back or down, as in *Galium Aparine*, Linn.

**retroser'rate** (*retro*, backward, *serratus*, sawed) = RUNCINATE; **retrover'ted**, *retrover'sus*, inverted; **Retrover'sio** (Lat.), an inversion.

**Ret'ting**, steeping flax or hemp in water to obtain the fibro-vascular portion freed from the cellular.

**retuse'**, *retu'sus* (Lat., blunted), with a shallow notch at a rounded apex.

**reversed'**, *rever'sus* (Lat., turned back), upside down, resupinate; **Rever'sion**, *Rever'sio*, a change backward, as to an earlier condition.

**revolu'bilis** (Lat.), capable of being rolled back; **rev'olute**, *revolu'tus* (Lat.), rolled back from the margin or apex; **revoluti'vus** (Lat.), in aestivation when the edges roll back spirally on each side, as in Rosemary.

**Revol'ver Flow'ers**, Kerner's term for those flowers "which exhibit within their outer portals a number of fine tubes resembling the barrels of a revolver."

**revol'ving Nuta'tion** (Sachs), = CIRCUMNUTATION.

**Rhabarb'arin**, a proximate principle of rhubarb; **rhabarbari'nus**, rhubarb-coloured, the colour of the officinal root, orange brown.

**Rhab'doid** (ῥάβδος, a staff, εἶδος, resemblance), a rod-shaped body found in the cells of the tentacles of *Drosera*, and in the mesophyll cells of *Dionaea*, becoming more spherical on stimulation; **Rhab'dolith** (λίθος, a stone), a detached portion of a **Rhab'dosphere** (σφαῖρα, a sphere), applied to certain pelagic Algae, *Rhabdosphaera Tubifer* and *R. Claviger*, G. Murr. and Blackm.

**Rhab'dus** ‡ the stipe of some Fungi (Lindley).

**Rhache'ola** (ῥάχις, a backbone), = RHACHILLA; **Rhachil'la**, a secondary axis in the inflorescence of grasses; **Rha'chis**, *Rach'is*, the axis of an inflorescence or compound leaf or frond.

**rhamna'ceous**, resembling or belonging to Rhamnaceae.

**Rham'nase**, an enzyme acting upon glucosides which occurs in the berries of *Rhamnus infectoria*, Linn.; **Rham'nin**, the colouring matter of the same fruit.

**Rha'phe** (ῥαφή, a seam), usually spelled RAPHE.

**Rhaph'is**, pl. **Rhaph'ides** (ῥαφίς, a needle), more usually occurring as RAPHIS and RAPHIDES.

**Rhe'gma**, = REGMA.

**Rhe'ine**, a proximate principle of the officinal rhubarb, *Rheum*.

**Rheot'ropism** (ῥέω, I flow, τροπή, a turning), the phenomena in a growing organism produced by the influence of a current of water (Jönsson); adj. **rheotrop'ic**.

**rhexigenet'ic** (ῥῆξις, a rending, γένος, offspring), the origin of tissues when formed by mechanical rupture (De Bary); **rhexolyt'ic** (λύσις, a loosing), when gemmae are detached by the rupture of a cell and the disorganization of its contents (Correns).

**Rhipid'ium** (ῥιπίς, ῥιπίδος, a fan), a fan-shaped cyme, the lateral branches being developed alternately in two opposite directions.

**rhizamor'phoid**, = RHIZOMORPHOUS.

**rhizan'thous**, *-thus* (ῥίζα, a root, ἄνθος, a flower), root-flowered, flowering from the root or seeming to do so; *cf.* RADICALIS; **Rhi'zanths**, plants so characterised, RHIZOGENS; **rhizauto'icous**, in Mosses when the male inflorescence is on a short branch, cohering to the female by a rhizoid; **Rhi'zel**, Van Tieghem's term for the "base" of the root, that is, the root apart from its radicles; **Rhizid'ium**, term suggested for RHIZOID in the oophore condition (Bower).

**Rhizi'na**, pl. **Rhizi'nae**, or **Rhiz'ines**,

the root-hairs of Mosses, etc., RHIZOIDS; **Rhiziophy'sis** ‡ (*φύσις*, a natural production), an expansion of the radicle, as in *Nelumbium*; **Rhizo'bia** (*βίος*, life), the organisms which cause root-tubercles in Leguminosae; **Rhizoblas'tus** ‡ (*βλαστὸς*, a bud), an embryo which emits roots; **Rhi'zocarp** (*καρπὸς*, fruit), used of Marsileaceae, which produce sporangia on root-like processes; **rhizocar'pous**, **rhizocar'pic**, *-picus*, (1) root-fruited, used by De Candolle to denote a perennial herb; (2) producing subterranean flowers and fruit, in addition to aërial, as *Cynometra cauliflora*, Linn., and *Anona rhizantha*, Eichl. (Huth); **Rhizocol'lesy** (*κόλλα*, glue), the union of the axes of two individuals of the same species solely by the roots (Morren); **Rhizocton'ia** (*κτόνος*, murder), hyphae twisted into strands like twine which fasten on the roots of trees; **Rhi'zogen** (*γένος*, race, offspring), (1) a plant which produces a root and flower only, as *Rafflesia*; (2) parasitic on the roots of other plants; (3) any organ which gives rise to roots or rhizoids; **rhizogenet'ic**, **rhizogen'ic**, producing roots; ~ **Cells**, ~ **Tis'sue**, the mother-cells of the peripheral layer of the central cylinder which frequently give rise to all the tissues of the rootlet; **Rhizog'enum**, the dilated base of the frond in some Algae, from which proceed holdfasts (Henslow); **Rhi'zoid** (*εἶδος*, resemblance), a hair, frequently branched, serving as a root in Mosses and Hepaticae, not morphologically distinct from the protonema, the same as RHIZINE; **rhi'zoid**, *rhizoid'eus*, root-like; **rhizoma'tiform** (*forma*, shape), resembling a rhizome in shape; **Rhi'zome**, *Rhizo'ma*, pl. *Rhizo'mata* (1) the rootstock or dorsiventral stem, of root-like appearance, prostrate on or under ground, sending off rootlets, the apex progressively sending up stems or leaves; (2) = CAUDEX (Henslow); (3) = RADICLE (Henslow); **rhizomat'ic**, *-cus*, **rhizo'matose**, having the character of a rhizome; **rhizo'mic** is used by Harvey for the same thing; **Rhi'zomorph** (*μορφὴ*, shape), a root-like branched strand of mycelial hyphae; **rhizomor'phic**, **-phoid**, **-phous**, (1) root-like; (2) resembling a rhizomorph; **Rhizoph'agist** (*φαγεῖν*, to eat), Boulger's term for a plant which is nourished by its own roots, an autophyte or rhizophyte; **rhizoph'ilous** (*φιλέω*, I love), growing attached to roots; **Rhi'zophore** (*φορέω*, I carry), a leafless branch in *Selaginella*, which eventually emits true roots; **Rhi'zophyll** (*φύλλον*, a leaf), Schuett's name for a compound pigment in Algae, consisting of Phycoerythrin and Floridean Green; **rhizophyl'lous**, when roots proceed from the leaves; **Rhi'zophyte** (*φυτὸν*, a plant), = RHIZOPHAGIST; **Rhi'zophylla'ceae** (*φύλλον*, a leaf, + *aceus*), a division of Ferns proposed by E. Newman for those in which the fronds are attached to the rhizome or root; **rhizophylla'ceous**, resembling such Ferns; **Rhizophy'sis** = RHIZIOPHYSIS; **Rhizopod'ium** ‡ (*πούς*, *ποδὸς*, a foot), the mycelium or "spawn" of Fungi; **Rhizotax'is**, **Rhizotax'y** (*τάξις*, order), the system of arrangement of the roots; **Rhi'zula** ‡ the protonema of Mosses, etc.

**rhodel'lus** (*ῥόδον*, a rose), rosy pink; **rhodoch'rous** (*χρόα*, colour), rose-coloured, pink; **Rhod'ogen** (*γένος*, offspring), an easily oxidizable body in the beet (Reinke); **rhodoleu'cus** (*λευκός*, white), reddish white; **Rhodol'ogy** (*λόγος*, discourse), that part of botany which treats of roses; **Rhod'ophyll** (*φύλλον*, a leaf), a name for the compound pigment of the Red Algae (Reinke). *cf.* RHIZOPHYLL; **Rhodosperm'in** (*σπέρμα*, a seed), rose-coloured

granules arising from the effects of reagents in cell-contents.

**rhom'beus, rhom'bic,** *rhom'bicus*, (*ῥόμβος*, a top), shaped like a rhomb, an equilateral oblique-angled figure; **rhombifo'lius** (*folium*, a leaf), rhomboidal-leafed; **rhombiform'is** (*forma*, shape), rhomb-shaped; **rhom'boid,** *rhomboi'deus*, **rhomboi'dal,** *rhomboida'lis* (*εἶδος*, resemblance), approaching a rhombic outline, quadrangular, with the lateral angles obtuse.

**rhynchos'porous** (*ῥύγχος*, a beak, *σπορά*, a seed), when the fruit ends in a beak.

**Rhytido'ma** (*ῥυτίδωμα*, a wrinkle), the formation of plates of cellular tissue within the liber.

**Rib**, a primary vein, especially the central longitudinal or midrib; ribbed, furnished with prominent ribs.

**Ricino'lein**, the glyceride of Ricinoleic Acid, present in the seeds of *Ricinus*.

**Ric'tus** (Lat., the opened mouth), the mouth or gorge of a bilabiate corolla.

**Ridge**, an elevated line on the fruit of Umbelliferae; either primary or secondary.

**rig'ens** (Lat.), stiff, rigid; **riges'cent,** *riges'cens*, having a stiff consistence.

**right-hand'ed** = DEXTRORSE; *cf.* Appendix C.

**rig'id,** *rig'idus* (Lat.), stiff, inflexible; **rigid'ulous,** somewhat rigid.

**Ri'ma** (Lat., a cleft), (1) a chink or cleft; (2) the ostiole of certain Fungi (Lindley); **rima'tus,** ‡ (Mod. Lat.), rimose; **ri'miform** (*forma*, shape), shaped like a cleft; **ri'mose,** *rimosus*, **ri'mous,** with chinks or cracks, as old bark; **rimulo'sus** ‡ (Mod. Lat.), a diminutive of rimose.

**Rind,** (1) the outer bark of a tree, all the tissue outside the cambium; (2) sometimes restricted to the tissues exterior to the active phloëm; (3) the outer layer or cortex of Fungi; (4) in Lichens the *Stra'tum cortica'le*, also styled **Rind-lay'er.**

**Ring**, see ANNULUS for the various senses in which it is used; ~ **Bark,** the outer bark when disengaged in strips or layers (Hartig); ~ **Pores,** vessels in wood when arranged in the annual rings, as seen in transverse section; ~ **Scale,** disease caused by *Trametes Pini*, Fr.; ~ **Type,** an appearance in nuclear division; **Ring'worm,** a disease of the skin due to *Trichophyton tonsurans*, Malmsten.

**rin'gent,** *rin'gens* (Lat., gaping), wide open, gaping, as the mouth of a labiate corolla; **ringentiflo'rus** (*flos*, a flower), the receptacle of such Compositae as bear ringent florets (Henslow); **ringentiform'is** (*forma*, shape), apparently gaping.

**ripa'rian, ripa'rious,** *ripa'rius* (Lat., frequenting river-banks), growing by rivers or streams.

**Ripe,** mature, the completion of an organ or organism for its allotted function; **ri'pening,** maturing.

**riva'lis** (Lat., pertaining to a brook), growing by a brook-side.

**rivularia'ceous,** resembling the genus *Rivularia*; **rivula'rioid** (*εἶδος*, resemblance), means the same.

**ri'vose,** *rivo'sus* (? *rivus*, a stream), having sinuate channels (Crozier).

**rivula'ris** (*rivulus*, a rill), growing by watercourses; **riv'ulose,** having small sinuate channels (Crozier).

**rizo'mic,** an error for RHIZOMATIC.

**Rod - fructifica'tion,** special simple gonidiophores in Basidiomycetes; **Rod'lets,** straight rigid bacteria.

**Rogue,** a gardener's name for a plant which does not come true from seed, a variation from the type.

**Root,** the descending axis, growing in the opposite direction from the stem, enodose, mostly developing underground, and absorbing moisture from the soil; ~ **Basil'lus,** a bacillus which has its station on roots, as the nitrifying bacteria; ~ **Cap,** large cells which form a cap-

like covering for the smaller cells in rear (growing point); ~ **Hairs**, slender outgrowths from the cells of the piliferous layer of the newly formed portions of roots; ~ **Leaf**, a leaf springing from the base of the stem; ~ **Parasit'ism**, when plants are partially parasitic and their roots penetrate others, as in *Rhinanthus*; ~ **Poc'ket**, the false "Cap" in *Lemna* roots; ~ **Pole**, the seat of new growth when the root is detached; ~ **Pres'sure**, the forcing of fluids into the xylem by osmotic force in the roots; ~ **Sheath** = COLEORHIZA; ~ **Stock** = RHIZOME; ~ **Tu'bercles**, the result of attack by Fungi or bacteria, a case of symbiosis, and source of nitrogenous nourishment to the host.

**Root, adventit'ious**, any not developed as a branch of the primary root, but from other members; **aër'ial** ~, used of those which are developed above ground, as of epiphytes; **pri'mary** ~, that developed at the opposite pole of the embryo to the shoot, the main descending axis.

**root'ing**, radicant.

**Root'let**, (1) a very slender root, or (2) the branch of a root; **Root'stock**, a rhizome.

**rope-shaped**, funicular.

**ror'idus** (Lat., bedewed), dewy, covered with particles which resemble dew-drops.

**rosa'ceous**, *-ceus* (*rosa*, + aceous), (1) arranged like the five petals of a normal rose; (2) belonging to the order of which *Rosa* is the type; (3) rose-colour, pink.

**rosela'tus** = (1) ROSULATUS, or (2) ROSACEOUS.

**osel'la** (dim. of *rosa*) = **Rosette'**, a cluster of leaves or other organs in a circular form, as *Plantago major*, Linn.; ~ **Shoot**, a cluster of leaves on a branch from the same point; the **Umbili'cal** ~ of Diatoms is a central star-shaped projection or depression of a few larger cells, as in *Coscinodiscus*.

**ros'eolus** (Mod. Lat.), pink or pinkish.

**Rose'tum** (Lat.), a rose-garden.

**ros'eus** (Lat.), rosy, pale-red, pink.

**Ros'in**, crude RESIN; **ros'inous** (Grew) = RESINOUS.

**Ros'tel** = ROSTELLUM.

**Ros'tellate**, *rostella'tus* (*rostellum*, a little beak), the diminutive of rostrate, somewhat beaked; **Rostel'lum**, (1) a small beak; (2) applied by Linnaeus to the caudicle or radicle; (3) a narrow extension of the upper edge of the stigma of certain Orchids, the abortive anterior lobe; **ros'trate**, *rostra'tus*, with a beak, narrowed into a slender tip or point; **ros'triform** (*forma*, shape), beak-shaped; **Ros'trum** (Lat., a beak), (1) any beak-like extension; (2) the inner segment of the coronal lobes in Asclepiads.

**Ros'ula** (dim. of *rosa*), (1) a small rose; (2) = ROSETTE; a collection of clustered leaves, as the Houseleek; **ros'ular**, *rosular'is*; **ros'ulate**, *rosula'tus*, collected into a rosette.

**Rot**, applied to various diseases of fungous or bacterial origin.

**rota'ceus** ‡ (*rota*, a wheel, + aceus) = **rotate'**, *rota'tus*, wheel-shaped, circular and flat, applied to a gamopetalous corolla with a short tube; **ro'tate-plane**, wheel-shaped and flat, gamopetalous and without a tube; **Rota'tion**, *Rota'tio*, the internal circulation of the protoplasmic contents of a cell, cyclosis; ~ **of Gyra'tion**, the peculiar rotation in Characeae; ~ **of Pro'toplasm**, the movement round and within the cell; **rota't plane** = ROTATE-PLANE; **ro'tiform** *rotiform'is* ‡ (*forma*, shape), wheel-shaped, as of a gamopetalous corolla with spreading limb and a short tube.

**rotund'**, *rotund'us* (Lat., round rounded in outline, somewhat orbicular, but a little inclining towards oblong; **rotunda't** (Lat.), rounded; **rotundifo'lious**

*-lius* (*folium*, a leaf), round-leaved.

**rough**, (1) scabrous; (2) also of surfaces covered with stiff coarse hairs; ~ **Leaves**, a gardener's name for the first true leaves of a seedling; **rough'ish**, scabrous.

**rubel'lus** (Lat.), reddish.

**rub'ens** (Lat.), blush-red.

**rub'eolus** (N. Lat.), somewhat red, ruddy.

**rub'er** (Lat., red), red in a general sense; **rubes'cent**, *rubes'cens*, turning red.

**rubic'olous** (*rubus*, a bramble, *colo*, I inhabit), parasitic on brambles, or attached to them; Henslow spells it *rubico'lus*.

**rubicun'dus** (Lat., red, ruddy), blush-red.

**rub'idus** (Lat.), reddish; **rubid'eus** (Mod. Lat.), means about the same.

**rubig'inose**, *rubigino'sus*, **rubig'inous**, *rubigin'eus* (*robiga* or *rubigo*, rust), rust-coloured, usually implying it is due to glandular hairs.

**Ru'bor**, **Rube'do** (Lat.), redness of any kind.

**ru'deral**, *rudera'lis* (from *rudus*, old rubbish), growing in waste places or among rubbish; ~ **Plants**, those which are characteristic of rubbish heaps, etc.

**Ru'diment** (*rudimentum*, a first attempt), (1) an imperfectly developed and functionally useless organ, a vestige; (2) has been suggested as an equivalent of the German term "Anlage"; *cf.* INCEPT, PRIMORDIUM; **rudimen'tal**, **rudimen'tary**, arrested in an early stage of development; ~ **Or'gans**, those whose development has been arrested at an early stage.

**rufes'cent**, *rufes'cens* (Lat.), becoming reddish.

**Ruf'fle**, used by Withering for the VOLVA of Fungi; **ruf'fled**, with a strongly waved margin (Crozier).

**rufid'ulus** (N. Lat.), somewhat red.

**ru'fous**, *ru'fus* (Lat.), reddish, of all shades.

**Ru'ga**, pl. **Ru'gae** (Lat.), a wrinkle or fold; **ru'gate**, wrinkled.

**rug'ged**, scabrous (Crozier).

**ru'gose**, *rugo'sus*, **ru'gous**, covered with, or thrown into wrinkles; **ru'gulose**, *rugulo'sus*, somewhat wrinkled.

**ru'minate**, *rumina'tus* (Lat., chewed), looking as though chewed, as the albumen of the nutmeg; ~ **En'dosperm**, mottled in appearance, due to the infolding of a dark inner layer of the seed-coat into the lighter coloured endosperm.

**run'cinate**, *runcina'tus* (*runcina*, a large saw), saw-toothed or sharply incised, the teeth retrorse.

**Run'dle**, used by Withering for UMBEL; and **Run'dlet**, for a partial or secondary umbel.

**Run'ner**, a stolon, an elongated lateral shoot, rooting at intervals, the intermediate part apt to perish, and thus new individuals arise; **run'ning**, repent, reptant.

**rupes'tral** (*rupes*, a rock), H. C. Watson's term for plants of walls and rocks; **rupes'trine** (Crozier), *rupes'tris*, growing among rocks, or as Lichens, on rocks; some write it *rupes'ter*; **Rupic'ola** (*colo*, I inhabit), a plant which dwells among rocks; adj. **rupic'olous**.

**rup'tile** *rup'tilis* (*ruptus*, broken), dehiscing in an irregular manner; **ruptiner'vis**, **ruptiner'vius** (N. Lat.), when a straight-ribbed leaf has its ribs interrupted and swollen at intervals; **rup'turing**, bursting irregularly.

**rura'lis** (Lat., rustic), growing in peculiarly rural places as the thatch of a cottage.

**rus'ciform** (*Ruscus*, *forma*, shape), with leaflets recalling the shape of the phyllodes of *Ruscus aculeatus*, Linn.

**rus'sus** (Lat.), red; russet, when meaning reddish-brown.

**Rust**, a fungous disease in cereals caused by *Puccinia graminis*, Pers.; it is also applied to other diseases of plants from similar attacks;

**rus'ty**, rubiginose, ferruginous, the colour of iron rust.

**ru'tilant**, *rut'ilans*, *rut'ilus* (Lat., red, glowing), used for plants having glowing flowers: red, orange, yellow, or an admixture of these.

**rytidocar'pus** (*ῥυτίς*, *ῥυτίδος*, a wrinkle, *καρπός*, fruit), when the surface of the fruit is covered with wrinkles.

**sabulic'ola** (*sabulum*, sand, *colo*, I inhabit); **sab'ulose**, *sabulo'sus*, growing in sandy places; Henslow prints the former word *sabuli'colus*; **sab'uline** (Crozier) is a synonym.

**Sac** (*saccus*, a bag), a pouch, as **Air ~**, an empty cavity in the pollen of *Pinus*; **Em'bryo ~**, see EMBRYO-SAC; **sac'cate**, *sacca'tus*, bag-shaped.

**sacchara'tus** (*saccharum*, sugar), sugary, or yielding sugar, as the sap of some species of maple; **saccharif'erous** (*fero*, I bear), sugar-bearing; **sacchari'nus** (Lat.), sugary; **Sac'charose**, cane-sugar.

**sac'ciform**, *sacciform'is* (*saccus*, a bag, *forma*, shape), bag-shaped; **Sac'culus** (Lat., a little bag), the peridium of some Fungi; **Sac'cus**, sometimes applied to the coronet of *Stapelia*, etc.

**Sac'cophytes** (*σάκκος*, a sack, *φυτόν*, a plant), Schuett's term for all plants which are not PLACOPHYTES.

**Sacel'lus** (*sacellus*, a little bag), ‡ a one-seeded indehiscent pericarp, inclosed within a hardened calyx, as the Marvel of Peru.

**Sachs's Cur'vature**, a curved growth of the root, due to a difference in the rate of growth of the two sides of the organ (Wiesner).

**Sack** = SAC.

**sad'dle-shaped**, applied to such valves of Diatoms as those of *Coscinodiscus*.

**Saf'fron**, the dried stigmas of *Crocus sativus*, Linn., which yield a yellow dye; **~ col'oured**, = *crocatus*.

**Sagit'tal**, **sag'ittate**, *sagitta'tus* (*sagitta*, an arrow), enlarged at the base into two acute straight lobes, like the barbed head of an arrow; **sagit'tiform**, *sagittiform'is* (*forma*, shape), arrow-shaped.

**Sa'go**, granulated starch obtained from the pith of certain palms, especially from species of *Sagus*.

**Saint-Valery' Ap'ple**, a monstrosity in which the petals are sepaloid, the stamens absent, and a double row of carpels present.

**Sal'ep**, the dried tubercles of some species of *Orchis*, also spelled **Sal'op**, **Saloop'**.

**Sal'icin**, a glucoside occurring in the bark of willows, species of *Salix*; **Salicyl'ous Ac'id** occurs in many flowers, especially of *Spiraea*, probably by oxidation of its corresponding alcohol, SALIGENIN.

**sa'lient** (*saliens*, springing forward), projecting forward.

**Salig'enin**, an aromatic substance formed by the decomposition of SALICIN, etc.

**saline'**, *sali'nus* (*sal*, *salis*, salt), (1) consisting or partaking of the qualities of salt; (2) growing in salt-marshes; **~ Mat'ters**, chemical salts occurring in plants, the union of acids with bases.

**salmo'neus** (*salmo*, a salmon); **salmonic'olor** (*color*, colour), salmon-coloured, pink with a dash of yellow.

**Salpigan'thy** (*σάλπιγξ*, a trumpet, *ἄνθος*, a flower), the transformation of ligulate or disk-florets of Compositae into conspicuous tubular florets (Morren).

**salsu'ginous**, *salsugino'sus* (*salsugo*, saltness), growing in places inundated by salt or brackish water, as saltings; **sal'sus** (Lat., salted), is used in the same sense.

**sal'ver-form**, **~ shaped**, hypocrateriform (A. Gray).

**Sama'ra** (or *Same'ra*, Lat., the fruit of the elm), an indehiscent winged fruit, as that of the sycamore

**samarid'eous**, **sam'aroid**, *samaroi'deus* (*εἶδος*, resemblance), used of a fruit resembling a samara.

**Sam'bucene**, a terpene derived from *Sambucus nigra*, Linn.

**san'guine**, *sanguin'eus* (Lat., blood-red), the colour of blood, crimson.

**Sanio's Law**, the order of cell-division of the cambium, as set forth in Pringsheim, Jahrb. ix. 60.

**San'talin**, a resinous substance from red sandal-wood, *Pterocarpus santalinus*, Linn. f., whence its name.

**San'tonin**, a bitter principle from wormwood, *Artemisia Santonicum*, Linn.

**Sap** (*sapa*, new wine boiled thick), the juice of a plant; ~ **Cav'ities**, vacuoles; ~ **Per'iderm**, distinguished from ordinary periderm by its cell-wall and contents being in a living condition, serving as absorption tissue (Wiesner); ~ **Pres'sure**, the force exerted on passing upwards through the tissues; ~ **Ve'sicle**, a vacuole surrounded by a thin skin of protoplasm; ~ **Ves'sel**, a duct or continuous vessel; ~ **Wood**, the new wood in an exogenous tree, so long as it is pervious to the flow of water, the alburnum; the sap of oak is Grew's term for the alburnum of that tree; **sap'less**, dry, destitute of sap; **Sap'ling**, a young tree; **Sap'a** = SAP.

**sap'id**, *sap'idus* (Lat., savoury), having a pleasant taste.

**sapona'ceous** (*sapo*, soap, + aceous), soapy, slippery to the touch; **sapona'rius** (N. Lat.), having scouring qualities like soap; **Sap'onin**, a soap-like principle from *Saponaria officinalis*, Linn., and other plants.

**Sap'or** (Lat., flavour), the taste which a plant offers.

**saprog'enous** (*σαπρός*, rotten, *γένος*, race), growing on decaying substances; **Sapromyioph'ilae** (*φιλέω*, I love), plants which are fertilized by carrion- or dung-flies; the flowers are putrid-smelling; **saproph'ilous** (*φιλέω*, I love), humus-loving; **Sap'rophyte** (*φυτόν*, a plant), a plant which lives upon dead organic matter; adj. **saprophy'tal**, **saprophyt'ic**; **Sap'rophytism**, the state of subsisting on humus or similar material; **symbio'tic** ~, a phanerogam which subsists by means of a mycorhiza, or felting of hyphal tissue on the roots.

**saproleg'nious**, allied to the genus *Saprolegnia*.

**Sarcob'asis** (*σάρξ*, *σαρκός*, flesh, *βάσις*, base), a carcerule, used for gynobasis when very fleshy; **Sarc'ocarp** *Sarcocar'pium* (*καρπός*, fruit), (1) the succulent and fleshy part of a drupe; (2) a general name for a baccate fruit; **Sar'code**, Dujardin's term for protoplasm; **Sar'coderm**, *Sarcoder'ma*, *Sarcoder'mis* (*δέρμα*, skin), a fleshy layer in seed-coats between the exopleura and the endopleura; **sarcoi'des** (*εἶδος*, resemblance), having the appearance of flesh; **Sarco'ma** ‡ a fleshy disk.

**Sar'ment**, *Sarmen'tum* (Lat., twigs, brush-wood), a long slender runner, or stolon, as in the strawberry; **sarmenta'ceous**, *-ceus* (+ aceous); **sarmentif'erous**, *-rus* (*fero*, I bear), sarmentose; **Sarmentid'ium**, ‡ a group of cymes or spikes arranged centrifugally as those in the cyme itself (Lindley); **sarmentit'ius**, belonging to twigs (Henslow); **sar'mentary**, applied by Massart to the buds of climbing plants which develop into the long slender branches and tendrils; **sar'mentose**, *sarmento'sus*, **sarmen'tous** (Lat., full of twigs), producing long and lithe runners; **Sarmen'tum**, a runner, *cf.* SARMENT.

**Sar'nian**, H. C. Watson's term for plants confined to the Channel Islands; *Sarnia* = Jersey.

**sathroph'ilous** (*σαθρός*, decayed, *φιλέω*, I love), applied by Pound and Clements to those Fungi which feed on "offal."

**sati'vus** (Lat.), that which is sown or planted, as opposed to spontaneous or native.

**satura'te-vi'rens** (Lat.), green as grass; a full deep green.

**sau'sage-shaped**, allantoid.

**Sautel'lus** (Fr. sautelle, a vine shoot), a bulbil, such as those of *Lilium tigrinum*, Ker; misprinted by

Henslow as "Santellus" with an erroneous derivation.

**saw-toothed** or **sawed**, serrate.

**sax'atile** (Crozier), *saxa'tilis* (Lat.), dwelling or growing among rocks; **sax'icole**, **saxic'oline**, **saxic'olous** (*colo*, I inhabit), growing on rocks as do many Lichens; **Saxic'ola**, a dweller among rocks, printed by Henslow as "saxi'colus"; **saxif'ragous** (*frag*, the root of *frango*, I break), rock-breaking, as plants which grow in crevices seem to be; **saxo'sus** (Lat.), stony.

**Scab**, a disease due to various Fungi, causing roughness of the cortex; in the potato it is ascribed to *Sorosporium scabies*, Fisch. de Waldh., in the United States attributed to *Oospora scabies*, Thaxter.

**sca'ber** (Lat.), rough, scurvy; **scab'rate**, *scabra'tus*, made rough or roughened; **scab'rid**, *scab'ridus*; **scab'ridous** (Lat., rough), somewhat rough; **scabrid'ulous**, and **scabridius'culus**, slightly rough; **Scabrit'ies** (Lat.), roughness of surface; **scab'rous**, = SCABER, rough to the touch.

**scalar'iform**, *scalariform'is* (*scalaris*, pertaining to a ladder, *forma*, shape), ladder-shaped, having markings suggestive of a ladder; ~ **Duct**, ~ **Ves'sel**, a vessel having scalariform markings, as in many Ferns; ~ **Mark'ing**, an elongated pit of a scalariform vessel (Crozier).

**Scale**, (1) any thin scarious body, usually a degenerate leaf, sometimes of epidermal origin; (2) a trichome, if disc-like; ~ **Bark**, outer bark which is thrown off in scale-like portions, as in the plane-tree; ~ **-formed**, shaped like a scale; ~ **Leaves**, cataphyllary leaves, usually on underground shoots, but sometimes on the above-ground portions.

**scall'oped**, crenate.

**scalpel'liform**, *scalpelliform'is* (*scalpellum*, a lancet, *forma*, shape), shaped like the blade of a penknife; often set vertically.

**sca'ly**, squamose, scarious; ~ **Buds**, leaf-buds of a strong character, that is, well protected by scales; ~ **Bulb**, one having separate scales, as in lilies.

**scan'dent**, *scan'dens* (Lat., climbing), climbing, in whatever manner.

**Scape**, *Sca'pus* (Lat., a stem), (1) a leafless floral axis or peduncle arising from the ground, as in *Cyclamen*; (2) the stipe of Fungi; **Scapel'lus** ‡ the neck or caulicle of a germinating embryo (Lindley); **sca'peless**, destitute of a scape.

**Scaphid'ium** (*scaphium*, a hollow vessel), the sporangium of Algae; **Scaph'ium** ‡ the keel of a papilionaceous corolla; **Scaph'obrya** (*βρύω*, I sprout), a term applied to the Marattiaceae, an order of Ferns in which the frond rises from between two stipular appendages forming a socket.

**scaph'oid** (*σκάφη*, a boat, *εἶδος*, resemblance), boat-shaped; **scaph'yform** (*forma*, shape), used by J. Smith for boat-shaped.

**scapiflo'rous**, *-rus* (*scapus*, a stem, *flos*, *floris*, a flower), having flowers borne on a scape; **sca'piform**, *scapiform'is* (*forma*, shape), resembling a scape, a stem wanting leaves; **scapig'erous** (*gero*, I bear), scape-bearing; **sca'poid** (*εἶδος*, resemblance), scapiform (Crozier); **sca'pose**, *scapo'sus*, having scapes; **Sca'pus** (Lat.) = SCAPE.

**Scar**, a mark left on a stem by the separation of a leaf, on a seed by its detachment, a cicatrix; **scarred**, marked by scars.

**sca'riose**, *scario'sus*, **sca'rious** (*scaria*, Late Lat., a thorny shrub), thin, dry and membranous, not green.

**scar'let**, vivid red, having some yellow in its composition, coccineus.

**scar'rose** ‡, a variant spelling of squarrose.

**scat'tered**, without apparent order.

**schista'ceous**, *-ceus* (*schistos*, a stone easily split, *e.g.*, slate, + *aceus*), slate-coloured, a deep-toned grey;

**schis'tose**, *schisto'sus*, slaty, as to tint.

**Schistog'amae** (*σχιστὸς* cleft, *γάμος*, a marriage), used by Ardissone to designate the Characeae ; **Schist'ogams**, *Schistogam'ia*, Caruel's terms for the same.

**Schi'zocarp** (*σχίζω*, I split, *καρπὸς*, fruit), a pericarp which splits into one-seeded portions, mericarps or "split-fruits" ; **schizogenet'ic** (*γένος*, offspring), formed by splitting ; ~ **intercel'lular Spaces** are formed by the separation of tissue elements owing to the splitting of the common wall of the cells ; **schizogen'ic Devel'opment**, development arising from division ; **schizog'enous**, = schizogenetic ; **schizo-lysig'enous** (*λύσις*, a loosing), arising from splitting or tearing of the tissues, applied by Tschirch to those cavities which arise at first from splitting of the cell-wall, but are enlarged by the breaking down of surrounding tissues ; **schizolyt'ic**, applied to those gemmae which are detached by splitting through the middle-lamellae of the cells (Correns) ; **Schizomyce'tes** (*μύκης*, a fungus), Naegeli's term for bacteria (Cohn) ; **Schizophy'tae** (*φυτὸν*, a plant), was also used by Cohn for the preceding ; **Schi'zophytes**, plants which increase by fission ; **Schizospor'eae** (*σπορὰ*, a seed), a name proposed by Cohn for the Schizomycetes ; **Schizoste'ly** (*στήλη*, a column), when the single primitive stele breaks up into as many distinct strands as there are vascular bundles ; adj. **schizoste'lous**.

**scim'itar-shaped**, acinaciform.

**Sci'on**, a young shoot, a twig used for grafting.

**Scirpe'tum**, Warming's term for an association of *Scirpus* plants.

**Scis'sion** (*scissio*, a cleaving) **Lay'er** = ABSCISS-LAYER ; **scissip'arous** (*pario*, I bring forth), used for FISSIPAROUS, as bacteria.

**sciu'roid**, **sciuroi'des**, *sciuroi'deus* (*σκίουρος*, a squirrel, *εἶδος*, resemblance), curved and bushy, like a squirrel's tail.

**Scleran'thium** (*σκληρὸς*, hard, *ἄνθος*, a flower), an achene enclosed in an indurated portion of the calyx-tube, as in *Mirabilis* ; **Sclerench'yma** (*ἔγχυμα*, an infusion), (1) formerly applied to stone-cells, SCLEREIDS ; (2) afterwards proposed for bast or liber cells, which are immensely thickened, with their protoplasm lost ; ~ **Cells**, all thick-walled cells which retain their protoplasm (Tschirch) ; adj. **sclerenchy'matous** ; as ~ **Tis'sue**, composed of thick-walled cells ; **Scle'reid**, a sclerotic or stone-cell, a strongly thickened or lignified cell ; it is sometimes spelled **Scle'rid** ; **scle'rised**, sclerosed ; **Scler'oblast** (*βλαστὸς*, a bud), a stone-cell, or sclereid ; **Scler'ogen** (*γένος*, offspring), the hard lignified deposits in such cells as those which compose the shell of the walnut, or grit-cells of the pear ; **Sclerogen'ia**, Berkeley's term for induration of parts amounting to a disease ; **scle'roid**, *scleroi'dus* (*εἶδος*, resemblance), having a hard texture ; **sclerophyl'lus** (*φύλλον*, a leaf), having hard and stiff leaves ; **scleropoi'dus** (*πούς*, *ποδὸς*, a foot), when persistent peduncles become hard and horny ; **sclero'sed**, hardened, lignified ; **Sclero'sis**, the hardening of a tissue or cell-wall by lignification of a membrane or intercellular deposits ; **Sclerote'**, a proposed emendation of SCLEROTIUM ; **sclero'tic**, hardened, stony in texture ; ~ **Cells**, grit-cells or sclereids ; ~ **Parench'yma**, grit-cells or stone-cells in pears, etc. ; **Sclero'tiet**, A. S. Wilson's name for a small SCLEROTIUM ; small concretions of lime have been also so termed, in error ; **sclero'tioid**, **sclero'toid** (*εἶδος*, resemblance), like a sclerotium ; **Sclero'tium**, pl. **Sclero'tia**, (1) a compact mass of hyphae in

a dormant state, occurring in several groups of Fungi ; (2) also applied by some to the resting stage of the plasmodium of the Myxogastres.

**scobic'ular** (*scobis*, sawdust) = SCOBIFORM (Crozier) ; **scobicula'tus**, in fine grains like sawdust ; **scob'iform**, *scobiform'is* (*forma*, shape), having the appearance of sawdust.

**Scobi'na** (Lat., a rasp), the zigzag rhachis of the spikelet in some grasses ; **scob'inate**, *scobina'tus*, when the surface feels rough as though rasped.

**Scole'cite** (σκώληξ, a worm), Tulasne's term for the vermiform archicarp of *Ascobolus pulcherrimus*, the "Vermiform Body" of Woronin.

**Scot'tish** Type of Distribution, used by H. C. Watson for those plants in Great Britain whose headquarters are in Scotland.

**scorpio'id**, **scorpioi'dal**, *scorpioi'dis*, *scorpioida'lis* (σκορπίων, a scorpion, εἶδος, resemblance), when the main axis (pseudaxis) of inflorescence is coiled like the tail of a scorpion, more strictly with flowers two-ranked, these being alternately thrown to opposite sides ; ~ **Cyme** or CINCINNUS, the lateral branches developed on opposite sides alternately as in Borragineae ; in some English textbooks erroneously given as "helicoid" ; ~ **Dichot'omy**, when alternate branches develop dichotomously ; ~ **unip'arous Cyme**, a cymose branching when the right and left forks are alternately the larger.

**Screw-lines**, spirals in phyllotaxis (Solms-Laubach).

**Scri'nium** (Lat., a case), Necker's term for the fruit of Myrtaceae, as of *Lecythis* ; adj. **scrina'ceus**.

**scrobic'ulate**, *scrobicula'tus* (*scrobiculus*, a little trench), marked by minute or shallow depressions, pitted ; **scrobiculo'sus**, pitted or punctiform.

**Scroll-gall**, Kerner's term for malformations caused by insects on leaves, which curl up on the side attacked.

**scro'tiform**, *scrotiform'is* (*scrotum*, a pouch, *forma*, shape) pouch-shaped ; **Scro'tum**, the pouch or volva of some Fungi.

**Scurf**, small bran-like scales on the epidermis ; **Scur'finess**, the appearance produced by membranous scales ; **scurf'y**, lepidote.

**scu'tate**, *scuta'tus* (*scutum*, an oblong shield), buckler-shaped, *scuta'ti Pi'li* = scales.

**Scu'tel** (*scutella*, a salver) = SCUTELLUM ; **scutella'ris**, **scu'tellate**, *scutella'tus*, shaped like a small platter ; **scutel'liform**, *scutelliform'is* (*forma*, shape), patelliform, but oval and round (Lindley) ; platter-shaped (A. Gray) ; **Scutel'lum**, pl. **Scutel'la**, (1) a second and anterior cotyledon in grasses, as in wheat (Scribner) ; (2) the conical cap of the endosperm in Cycadeae ; (3) in Lichens, such an apothecium as in *Parmelia*, with an elevated rim derived from the thallus.

**scu'tiform**, *scutiform'is* (*scutum*, a shield, *forma*, shape), buckler-shaped ; ~ **Leaf**, the first formed leaf in *Salvinia*, the protophyll which differs in shape from those which succeed it.

**Scu'tum**, (1) used by Jacquin to denote the outer corona in *Duvalia*, Haw. ; (2) the broad dilated apex of the style in Asclepiads.

**scym'itar-shaped** (A. Gray) = SCIMITAR-SHAPED.

**Scyph'a** or **Scyph'us** (σκύφος, a cup or goblet), (1) a cup-like dilatation of the podetium in Lichens, having shields on its edge ; **Scy'phi**, pl. "open cups" (Leighton) ; (2) ‡ the corona of *Narcissus* (Lindley) ; **scyph'iform** (*forma*, shape), cup-like ; **scyphiph'orous** (φορέω, I carry), bearing cups ; **Scyphog'eny** (γεννάω, I produce), Morren's term for the production of ascidia ; **scyph'ose**, possessing scyphi ; **Scyph'ulus**, the colesule or vaginule of Hepaticae.

**Scy'tinum** (*σκύτινος*, leathern), used by Necker to denote an indehiscent pulpy pod, as of the Tamarind.

**sea-green**, glaucous.

**Seam**, see TRACHEID-SEAM.

**seba'ceous**, *seba'ceus* (Lat., a tallow candle), like lumps of tallow.

**sebif'erous** (*sebum*, tallow, *fero*, I bear), bearing vegetable wax or tallow.

**sec'ondary**, *secundar'ius*, not primary, subordinate; ~ **Bast**, the result of the continued activity of the cambium, a formation of bast of the same essential character as the primary bast, but not forming a part of the original bundle; ~ **Bud**, additional to the usual bud, when more than one occurs in or near the axil; ~ **Cor'tex**, successive formations of liber or bast within the cortical sheath and primary cortex, exclusive of the secondary cork, phelloderm; ~ **Des'mogen**, formed from the cambium and destined to become secondary permanent tissue; ~ **Fun'gus**, a parasite or saprophyte which attacks a plant after it has been injured or killed by some other Fungus; ~ **Growth**, additional or subsequent to primary growth; ~ **Hy'brid**, a hybrid one or both of whose parents were also hybrids; ~ **Li'ber**, = ~ BAST; ~ **Medul'-lary Rays**, those which are intermediate between the primary rays, and do not extend to the pith; ~ **Mem'bers**, all those which are developed from the primary members, if borne directly, they are said to be of the first order, if on the latter, of the second order, and so on; ~ **Mer'istem**, a cambium which arises in an organ after its first development, by means of which further growth is possible; ~ **Myce'lium**, rhizoid attachments to the base of the sporophore resembling the normal mycelium; ~ **Nu'cleus**, the nucleus of the embryo-sac, resulting from the union of the two polar nuclei; ~ **Pedun'cle**, a branch of a many-flowered inflorescence; ~ **Pet'iole**, the footstalk of a leaflet; ~ **Root**, a lateral root, or a branch from the primary root; ~ **Sclerench'yma** consists of elongated prosenchymatous cells having lignified walls marked with narrow oblique bordered pits; ~ **Spore**, a spore borne on a promycelium or derived from another spore; ~ **Struc'ture**, (1) any structure not primary, or (2) after it has grown beyond its early condition; ~ **Tis'sue**, refer to DESMOGEN, VASCULAR TISSUE, etc.; ~ **Wood**, derived from the cambium but not in the original bundle as first formed, it differs from the primary wood by not having spiral or annular vessels like those on the protoxylem (Vines).

**Sec'ondine** = SECUNDINE (Crozier).

**Secre'tion** (*secretio*, a dividing), a substance formed from the fluids of the plant by the agency of glandular cells; ~ **Bod'ies**, secretory sacs; **secre'tory**, producing a secretion; ~ **Sac**, a unicellular or aggregated sac containing excreta as gum, resin, oil; ~ **Space**, an intercellular space containing similar products of secretion; ~ **Tis'sue**, as above, it forms a storehouse for the waste products of the plant.

**sec'tile**, *sect'ilis* (Lat., cut or cleft), as though cut up into portions, as the pollen of some Orchids.

**Sec'tion** (*sectio*, a cutting), (1) a thin slice taken usually for microscopic inspection, in a given direction; (2) an important division of a genus.

**Sec'tor** (Lat., one who cuts), the term **pericy'clic** ~, is used by Bastit for interruptions of the continuity of the central cylinder of the subterranean portion of *Polytrichum*, as viewed in cross-section.

**sec'tus** (Lat., cut), parted, completely divided to the base; in composition it forms the suffix sect.

**secund'**, *secun'dus* (Lat., following or second), parts or organs directed to one side only, usually by torsion ; **secunda'tus** (Lat., second in rank) is given by Henslow as synonymous ; **secundiflo'rus** (*flos, floris*, a flower), the flowers all turned in the same direction ; **Sec'undine**, the second, that is, the inner coat of an ovule ; *Secundi'nae inter'nae*, an old term for ALBUMEN of a seed ; **Secun'dospore** (+ SPORE), C. Macmillan's term for a spore which can also act as a gamete, as in *Ulothrix*.

**Se'des Flor'is** (Lat.), ‡ the torus of a flower.

**Seed**, the fertilized and matured ovule of a phanerogamous plant ; ~ **Bed**, Blair's word for PLACENTA ; ~ **Bud**, in Milne's Dictionary cited for OVARY ; ~ **Coat** = TESTA ; ~ **Leaf**, ~ **Lobe** = COTYLEDON ; ~ **Sport**, a seminal variation ; ~ **Stalk**, the FUNICLE or podosperm ; ~ **Varia'tion**, a variation arising from a seed, and not a bud ; ~ **Vari'ety**, a variety produced from a seed-sport, or one which comes true from seed ; ~ **Ves'sel** = PERICARP ; **Seed'age**, proposed by L. H. Bailey for the state or condition of being reproduced by seed ; **Seed'ling**, a plant produced from seed, in distinction to a plant propagated artificially.

**segeta'lis** (Lat., pertaining to standing crops), growing in fields of grain.

**Seg'ment**, *Segmen'tum* (Lat., a piece cut off), (1) one of the divisions into which a plant organ, as a leaf, may be cleft ; (2) each portion of meristem which originates from a single SEGMENT CELL ; ~ **Cell**, the basal portion which is successively cut off from the apical cell in growth ; **Segmenta'tion**, (1) division into members ; (*a*) similar, as in a thallophyte, or (*b*) dissimilar, as in a cormophyte ; (2) the division of the apical cell ; (3) the primitive cell-divisions of the embryo.

**se'gregate**, *segrega'tus* (Lat., separated), kept apart ; a **Se'gregate** is a species separated from a superspecies.

**Sei'rospore** (σειρά, a string or rope, σπορά, a seed), a spore produced in a branched row resulting from the division of terminal cells of particular branches in certain Ceramiaceae ; adj. **seirospor'ic**.

**seju'gous**, *se'jugus* (*sex*, six, *jugum*, a yoke), having six pairs of leaflets, as some pinnate leaves.

**Selec'tion, Nat'ural**, Darwin's expression for that which Herbert Spencer has termed the "Survival of the fittest."

**Selenot'ropism** (σελήνη, the moon, τροπή, a turning), movements of plants caused by the light of the moon (Musset).

**Self**, a florist's term for having the same tint throughout, without markings of other colours or tints ; ~ **-bred**, the offspring of self-fertilized flowers (F. Darwin) ; ~ **-col'oured**, uniform in tint ; ~ **Fertiliza'tion**, fertilized by its own pollen ; ~ **Par'asitism**, parasitic on its own species, as sometimes happens with *Viscum* ; ~ **Pollina'tion**, the pollen of the same flower brought into close contact with its own stigma ; ~ **Steril'ity**, when pollen though ripe is inoperative on the stigma of its own flower.

**sellaeform'is** (*sella*, a saddle, *forma*, shape), saddle-shaped.

**Se'men** (Lat., seed), the seed of flowering plants ; ~ **cornicula'tum**, the receptacle of certain Fungals (Lindley) ; ~ **mul'tiplex** = SPORIDESM.

**Se'met** (*semen*, seed), a term used by Grew and others for ANTHER, *cf.* SEMINE.

**sem'i** (Lat.), half ; **semi-adhe'rent**, *semi-adherens* (*adherens*, sticking), half-adherent, that is, the lower part or half ; **semi-amplec'tens**, ~ **amplec'tus** (Lat., wound about),

equitant; ~ **amplecti'vus** is also cited for the same; **semi-amplex'icaul**, *semi-amplexicau'lis* (*amplexus*, embracing, *caulis*, the stem), applied to leaves whose lower portion half embraces the stem; **semiamplex'us**, half-embracing; **semianat'ropal**, **semi-anat'ropous** (+ ANATROPOUS) = amphitropous; **semi-calyciform** (+ CALYCIFORM), half cup-shaped (J. Smith); **Semicap'sula** (+ CAPSULA) = CUPULE; **semiaquat'ic** (+ AQUATIC), term for those water-plants which root in the soil, but produce aquatic leaves, otherwise living as land-plants; **Sem'icell**, one half of a Desmid; **semicolum'nar**, *semicolumna'ris* (+ COLUMNAR), semiterete; **semicon'nate** (+ CONNATE), applied to such structures as the half-united filaments of certain willows (Winmer; **semi-cor'date**, *semicorda'tus* (+ CORDATE), heart-shaped on one side only; **semicordiform'is** (*forma*, shape), somewhat cordate; **semicyclindra'ceus**, ~ *cylin'dricus* (+ CYLINDRICUS), semiterete; **semidig'ynus** (+ DIGYNUS), when two carpels cohere near the base only; **semidoub'le**, *semidu'plex*, when the inner stamens continue perfect, and the outer are petaloid, half changed into a double flower; **semiellip'tic** (+ ELLIPTIC), half-elliptic, the division being longitudinal; **semieq'uitant** (+ EQUITANT), half-equitant; **Semiflor'et** (+ FLORET), a ligulate floret; **semiflos'cular**, **semiflos'culous**, *semiflosculo'sus* (+ FLOSCULAR), having the corolla split and turned to one side as in ligulate florets of Compositae; **Semiflos'cule**, a semifloret (Crozier); **Semifru'tex** (*frutex*, a shrub), an under-shrub; **semihasta'tus** (+ HASTATUS), hastate on one side only; **semilan'ceolate** (+ LANCEOLATE), half-lanceolate, longitudinally divided; **semilentic'ular** (+ LENTICULAR), sublenticular (Crozier); **semiloc'ular**, *semilocula'ris*, *semiloc'ulus* (+ DOCULAR), with incomplete dissepiment, practically unilocular; **Semili'chen** (+ Lichen), Zukal's term for forms which when destitute of their appropriate Alga can subsist as saprophytes, or Fungi which can combine with some Alga to form a Lichen; **semilu'nar**, **semilu'nate**, *semiluna'tus* (+ LUNATE), lunate, shaped like a half-moon, or crescent-shaped.

**se'minal**, *semina'lis* (Lat., pertaining to seed), relating to the seed; ~ **Leaf**, a cotyledon; ~ **Sport**, = SEED-SPORT; **Semina'tae**, Van Tieghem's term for plants furnished with true seed-coats; **Semina'tio**, the act of natural dispersion of seeds; **Se'mine**, used by Grew to include both his Semet and Chive, the genitalia; **seminif'erous**, *-rus* (*fero*, I bear), (1) seed-bearing; (2) used for the special portion of the pericarp bearing the seeds; (3) = Dicotyledons; ~ **Scale**, in Coniferae, that scale above the bract-scale on which the ovules are placed and the seed borne; **seminif'ic** (*facio*, I make), forming or producing seed; **Seminifica'tion**, propagation from seed; **seminiform'is** (*forma*, shape), applied to reproductive bodies in Cryptogams which are not part of the fructification; **Se'menin**, a sinistrorse carbohydrate occurring in reserve-cellulose in the endosperm of some seeds (Reiss); **Se'minose**, a dextrose form from ordinary cellulose belonging to the group of grape-sugars (Reiss); **Se'minule**, *Semin'ulum*, = SPORE; **Seminulif'erus** (*fero*, I bear), (1) that part of Cryptogams which bears the spores, a sporophore; (2) the cavity of the ovary while the ovules are yet unfertilized.

**semiorbic'ular**, *semiorbicula'tus* (*semi*, half, + ORBICULAR), half-round or hemispherical; **semio'val**, *semiova'lis*, **semio'vate**, *semiova'tus* (+ OVAL), half-oval, one side only, or ovate in longitudinal halves; **semipetaloi'deus** + (PETA-

LOID), petaloid; of the shape or texture of a petal; **semipollica'ris** (+ *pollex*, a thumb-breadth), about half an inch in length; **semira'dians**, **semira'diate**, *semiradia'tus* (*radians*, emitting beams), when only a portion of the outer florets of a Composite are radiant and different from those of the disk; **semire'niform**, *semireniform'is* (*renes*, the kidneys, *forma*, shape), kidney-shaped on one side only; **semireticula'tus** (*reticulatus*, netted), when one of several layers is netted, the others membranous; **semisag'ittate**, *semisagitta'tus* (*sagitta*, an arrow), arrow-shaped on one side of the longitudinal axis; **semisep'tate**, *semisepta'tus* (+ SEPTATUS), half-partitioned, the dissepiment not projecting far enough to divide it into two cells; **semistam'inate**, *semistaminar'ius*, *-ris* (+ STAMEN), when part of the stamens are changed into petals; **semisymphioste'monis** (+ *συμφύω*, I unite, *στήμων*, a stamen), when some of the stamens cohere, the rest remaining free; **sem'iterete**, *semiter'es* (*teres*, round and tapering), half-terete; **semitrig'ynus** (*τρίς*, three, *γυνή*, a woman), when of three styles two are united half way, the third being free on the ovary (Meissner); **semival'vate**, *semivalva'tus* (+ VALVATE), when the valves of a fruit are only partially dehiscent; **semivertic'illate** (+ VERTICILLATE), subverticillate (Crozier).

**sempervi'rent**, *sempervirens* (Lat.), evergreen, retaining its leaves during the winter.

**se'nary**, *sena'rius* (Lat.), belonging to, or containing, six.

**Senes'cence** (*senesco*, I grow old), the ageing of protoplasm; a term used by Maupas for the condition of the offspring of a long continued series, which, after continued fission, ultimately degenerate, and lose first the power of conjugating, and finally that of fission.

**sensib'ilis** (Lat.), sensitive, manifesting irritability; **sen'sitive**, *sensiti'vus*, responsive to stimulus, as the leaves of *Mimosa pudica*, Linn.; ~ **Tis'sues**, those in which the sensibility resides; **Sen'sitiveness**, irritability; **sen'sory**, sensitive.

**Sep'al**, *Sep'alum* (*σκέπη*, a covering), Necker's convenient term in universal use for each segment composing a calyx; **sep'aline**, *sepali'nus*; **sep'alous**, relating to sepals; **sep'aloid**, *sepaloi'deus* (*εἶδος*, resemblance), resembling a sepal; **Sepalo'dy**, the metamorphosis of petals into sepals or sepaloid organs; **Sepal'ulum**, Necker's diminutive for a small sepal.

**sep'arate** (*separatus*, put apart) **Flow'ers**, those of distinct sexes, diclinous; **sep'arating Lay'er**, the ABSCISS-LAYER, as in leaf-fall; **Separa'tion**, multiplication by naturally detachable portions, such as gemmae, bulbils, etc.

**sepia'ceus** (*sepia*, a cuttle fish), sepia-coloured, a dark clear brown.

**Sepic'ola** (*sepes*, a hedge, *colo*, I inhabit), an inhabitant of hedges, Henslow prints it *sepi'colus*.

**Sep'ta**, pl. of **Sep'tum** (Lat., a hedge or enclosure), any kind of partition, whether a true dissepiment or not; **septa'lis** (Lat.), belonging to a septum; **sep'tal**, H. C. Watson's term for plants growing in hedgerows; **sep'tate**, *septa'tus*, divided by a partition; ~ **Spore** = SPORIDESM.

**septem'fid** (*septem*, seven, *fid*, the root of *findo*, I cleave), cut into seven divisions; **septempar'tite** (*partitus*, cut), divided into seven lobes; **septen'ate**, *septena'tus*, *sept'enus*, having parts in sevens, as in a compound leaf, with seven leaflets arising from the same point; **septena'tal-pin'nate**, used by Babington for those brambles which have seven pinnules in each leaf.

**septici'dal**, **sep'ticide**, *septicida'lis* (*septum*, a hedge or enclosure, *caedo*, I cut), when a capsule

dehisces through the dissepiments or lines of junction ; **septif'erous** (*fero*, I bear), bearing the partition or dissepiment.

**septifo'lious** (*septem*, seven, *folium*, a leaf), seven-leaved.

**sep'tiform**, *septiform'is* (*septum*, a hedge, *forma*, shape), having an appearance of a dissepiment, as the placenta of *Plantago* ; **septif'ragal**, *septif'ragus* (*frag*, the root of *frango*, I break), when in dehiscence the valves break away from the dissepiments ; **sept'ilis**, of or belonging to dissepiments ; **sep'tulate**, having spurious transverse dissepiments, (*a*) sparsely septate, (*b*) indistinctly septate, its true sense ; **Sep'tulum**, a little partition of any kind.

**septupliner'vis**, *-vius* (*septuplum*, in sevens, *nervus*, a nerve), seven-nerved, applied to a leaf.

**Se'reh**, a disease of sugar-cane, probably due to *Hypocrea Sacchari*, Went.

**se'rial**, *seria'lis*, **se'riate**, *seria'tus* (*series*, a row), disposed in series of rows, either transverse or longitudinal.

**seric'eous**, *seric'eus* (Lat.), silky, clothed with close-pressed soft and straight pubescence.

**Se'ries** (Lat.), (1) a row ; (2) by A. Gray used as equivalent to subkingdom, by others used for various groups.

**sero'tinal**, **sero'tinous**, *-nus* (Lat., that comes late), produced late in the season, or the year, as in autumn.

**Ser'ra** (Lat., a saw), the tooth of a serrate leaf ; **serraefo'lius**, preferably **serratifo'lius** (*folium*, a leaf), having serrate leaves ; **ser'rate**, *serra'tus*, beset with antrorse teeth on the margin ; **ser'rate-cil'iate**, toothed, and with a marginal series of hairs ; **serra'tulus**, slightly toothed, denticulate ; **Ser'rature**, *Serratu'ra*, the toothing of a serrate leaf ; **ser'rulate**, *serrula'tus*, serrate, but the teeth minute ; **Serrula'tion**, (1) being serrulate ; (2) a serrulate tooth.

**ser'ried**, close together in rows (Crozier).

**Ser'tulum** (*sertum*, a garland), (1) ‡ a simple umbel ; (2) a selection of plants described or figured ; **Ser'tum**, used for an account of a collection of plants.

**se'samoid** (*Sesamum*, + *εἶδος*, resemblance), granular, like the seeds of sesamum.

**sesqui** (Lat.), a prefix meaning one and a half ; **sesquial'ter**, (1) when the stamens are half as many again as the petals or sepals ; (2) when a fertile flower is accompanied by a neuter flower, as in some grasses ; **sesquipeda'lis** (Lat.), a foot and a half in length.

**ses'sile**, *ses'silis* (Lat., sitting), as though sitting close, destitute of a stalk.

**Se'ta** (Lat., a bristle), (1) a bristle or bristle-shaped body ; (2) the sporophore of a Moss, the stalk which supports its capsule ; (3) the arista or awn of grasses, when terminal ; (4) a peculiar stalked gland in *Rubus* ; (5) by cyperologists used for the bristle within the utricle of certain species of *Carex* ; it represents the continuation of the floral axis (C. B. Clarke) ; **seta'ceous**, *-ceus* (+ aceous), bristle-like ; applied to a stem it means slender, less than subulate ; **seta'ceo-serra'tus**, having the serratures ending in a bristle-like point ; **setife'rous** (*fero*, I bear), bristle-bearing ; **se'tiform** (*forma*, shape), in the shape of a bristle ; **setig'erous** (*gero*, I bear), bristle-bearing ; **se'tose**, *seto'sus* (Lat.), bristly, beset with bristles ; **Se'tula**, the stipe of certain Fungi (Lindley) ; **setu'liform** (*forma*, shape), thread-like ; **se'tulose**, *setulo'sus*, resembling a fine bristle.

**Sex**, *Sex'us* (Lat.), in botany, male or female functions in plants.

**sexan'gular**, *sexangula'ris*, *sexan'gulus* (Lat.), six-angled.

**sexfar'ious**, *-us* (*sex*, six, *fariam*, suffix = in rows), presenting six rows, extending longitudinally round an axis.

**sex'ifid** (*sex*, six, *fid* = cleft), six-cleft (Crozier); **sexloc'ular** (*loculus*, a small cell), six-celled.

**sexpar'tite**, *sexparti'tus* (Lat.), cut into six segments.

**Sex'tant** (*sextans*, a sixth part), a radial cell division of segments in three series, a sixth part of the original (De Bary).

**sex'tuplex** (Lat.), six-fold or six-times.

**sex'ual**, *sexua'lis* (Lat., pertaining to sex), (1) the distinction of sex; (2) applied to the phenomena of conjugation generally; **~ Gener'ation**, the stage which bears the sexual organs; in Ferns the prothallus; **~ Sys'tem**, Linnacus's artificial arrangement by the number and position of the sexual organs.

**Shaft**, Withering's word for STYLE.

**Shag-hai'rs**, VILLI, in German "Zotten."

**shag'gy**, villous.

**Shake**, defect in timber due to the attacks of *Trametes Pini*, Fr.; also known as **Bark-**, **Heart-**, or **Ring-shake.**

**sharp-pointed**, acute.

**Sheath**, (1) a tubular or enrolled part or organ, as the lower part of the leaf in grasses; (2) a limiting layer of surrounding cellular tissue, as the BUNDLE-SHEATH; **sheath'ing**, enclosing as though by a sheath.

**Shelf, conduc'ting**, Dickson's term for a ledge within the ascidium of *Cephalotus follicularis*, Labill.

**Shell**, (1) the hard envelope of a nut; (2) a mass of layers in the cell-wall.

**Shel'ter-par'asite**, see DOMATIA.

**Shield**, (1) an apothecium or disk arising from a Lichen-thallus, containing asci; (2) in Characeae, one of the eight cells forming the globule; (3) the staminode of *Cypripedium* (S. Moore); **~ shaped**, in the form of a buckler; clypeate, peltate, or scutate.

**Shift'ing**, the same as GLIDING GROWTH; in Germ. Verschiebung.

**shi'ning**, lucid, a clear and polished surface.

**Shoot**, (1) a young growing branch or twig; (2) the ascending axis; when segmented into dissimilar members it becomes a STEM; **~ Pole**, that point where new shoot-growth begins, *cf.* ROOT-POLE; **leaf'y ~**, a branched shoot; **thal'loid ~**, an unsegmented shoot.

**Short-rods**, short bacteria.

**Shrub**, a woody perennial of smaller structure than a tree, wanting the bole; **shrub'by**, like a shrub; **Shrub'let**, an undershrub.

**sic'cus** (Lat.), dry, juiceless, containing little or no watery juice; **siccita'te** (Lat., abl. absol.), in the dry state, that is, herbarium specimens.

**Sick'le-stage**, of nuclear division, Zimmerman's term for the PARANUCLEUS of Strasburger, a crescent-shaped body at one margin of the nucleus, supposed to represent a stage in the disappearance of the nucleolus.

**Sieve-cells**, the individual cells which constitute the SIEVE TUBES; **~ Disk**, **~ Field**, **~ Plate**, the pierced plate on the transverse or lateral walls of vessels covered on both sides by callus; **~ Pores**, the openings in a sieve-plate; **~ Tis'sue**, long articulated tubes, whose segments communicate by means of the sieve-plates; **~ Tubes**, the tubes composing the tissue described; **~ Xy'lem**, applied by Chodat to groups of sieve-cells in the wood of *Dicella*.

**sigilla'rian**, resembling or allied to *Sigillaria*, a genus of fossil plants whose surface is marked with numerous scars; **sig'illate**, *sigilla'tus* (Lat., sealed), as if marked with impressions of a seal, as the rhizome of *Polygonatum*.

**sig'matoid** (σῖγμα, the Greek *s*, εἶδος, resemblance), or **sig'moid**, *sigmoi'deus*, doubly curved in opposite directions, like the Greek *s*.

**Signs**, arbitrary symbols for shortly stating certain facts; a selection of those more generally used, is given in Appendix A.

**Sil'icle**, *Silic'ula*, **Sil'icule** (Lat., a little husk or pod), (1) a short siliqua, not much longer than wide; (2) ‡ = CARPOCLONIUM of Algae.

**silicic'olous** (*silex*, *silicis*, a flint, *colo*, I inhabit), used of Lichens which grow on flints; **Silicifica'tion**, the deposition of silica in tissues; **Sil'ico-cel'lulose** (+ CELLULOSE), the condition of tissue when silex is intimately blended with it as in *Equisetum hyemale*, Linn. (Tschirch).

**silic'ulose** (+ SILICULA), having silicles as fruits, or resembling a silicle.

**Sil'iqua** (Lat.), **Silique**, pr. Si-leek', (1) the peculiar pod of the Cruciferae, two valves falling away from a frame, the REPLUM, on which the seeds grow, and across which a false partition is formed; (2) ‡ by Blair employed for Legume; **Siliquel'la**, a subordinate part of a fruit such as the poppy, consisting of a carpel with two extended placentas; **siliq'uiform** (*forma*, shape), shaped like a silique; **sil'iquose**, *siliquo'sus*, when the fruit is a silique, or resembles one.

**sil'ky**, sericeous.

**Sil'va** = SYLVA.

**Sil'ver-grain**, the appearance in radial longitudinal section of exogenous wood, especially of oak, due to shining plates of the medullary rays.

**sil'very**, having a lustre like silver.

**sim'ilary Parts**, ‡ elementary organs or tissues (Lindley).

**similiflo'rous** (*similis*, like, *flos*, *floris*, a flower), applied to an umbel when its flowers are all alike; **Simili-sym'metry** (+ SYMMETRY), when the two halves of a Diatom valve are similar (Schuett); consimilarity.

**sim'ple**, *sim'plex*, of one piece or series, opposed to compound, ~ **Fruits**, those which result from the ripening of a single pistil; ~ **Gland**, a single cell containing a special secretion; ~ **Gonid'iophore** (+ GONIDIOPHORE), a single hypha as in *Penicillium*; ~ **Hairs**, not compound or branched, the prolongation of a single epidermal cell; ~ **Inflores'cence**, a flower cluster with one axis, as a spike, spadix, or catkin; ~ **Leaf**, of one blade, with incomplete segmentation; ~ **Nuta'tion**, nutation in one direction only; ~ **Pis'til**, consisting of one carpel; ~ **Pit**, ~ **Pore**, with only a slight enlargement at the centre, where it meets the neighbouring cell; ~ **pri'mary Root**, a tap-root; ~ **Spor'ophore**, a single hypha or its branch, in German, Fruchtfaden; ~ **Stem**, a stem which is unbranched.

**simplicis'simus** (Lat.), entirely simple.

**simulta'neous** (*simultaneus*, Late Lat., at the same time) **Whorls**, when the members are of the same age and developed at the same time.

**Sinal'bin**, mustard oil from *Brassica alba*, Boiss., formerly termed *Sinapis alba*, Linn., whence the name.

**Sina'grin**, or **Sin'igrin**, a glucoside occurring in the seeds of *Brassica sinapoides*, Roth, formerly termed *Sinapis nigra*, Linn., the origin of the name.

**Sina'pin** or **Sina'pisin**, an alkaloid from *Brassica alba*, Boiss. (Hanbury & Fluekiger).

**sin'gle**, used of a flower which has only one set of petals, as opposed to double or any approach to doubling.

**sinis'trad** = SINISTRAL.

**sinis'tral**, **sinis'trorse**, *sinistror'sus*, turned to the left; *cf.* DEXTRORSE, and Appendix C.

**Sin'istrin** (*sinister*, the left), a carbohydrate from *Urginea* and other bulbs, formerly regarded as a gum.

**Sin'ker**, the secondary roots of Mistleto, *Viscum album*, Linn., forming laterals which strik-

perpendicularly downward into the wood of the host.

**sin'uate**, *sinua'tus* (Lat., curved), with a deep wavy margin; **sin'uated**, deeply waved; **sin'uolate**, *sinuola'tus*, repand, faintly or minutely sinuate; **sin'uose**, **sin'uous**, sinuate.

**Sin'us** (Lat., a curve, a fold), (1) a recess or re-entering angle; (2) a pore in some Fungi (Lindley).

**Si'phon** (*σίφων*, a tube), a pericentral elongated tube in the frond of *Polysiphonia* and allied Algae; **sipho'neous**, relating to Algae possessing tubular structure; **Siphoniphy'ton** (*φυτὸν*, a plant), a Composite with all its florets tubular; **Sipho'nogam** (*γάμος*, marriage), plants fertilized by means of pollen-tubes, all Phanerogams; adj. **siphonogam'ic**, **siphonog'amous**, the condition being **Siphonog'amy**; **siphonoste'lic** (*στήλη*, a column), having a tubular stele (Jeffrey).

**Sis'ter-cells**, cells of the same generation produced by the division of a single (mother) cell, as the pollen-grains of a tetrad.

**Sit'us** (Lat., situate), (1) the position occupied by an organ; (2) ‡ the mycelium of some Fungi (Lindley).

**Skein**, a condition of the chromatin of the nucleus in the initial and final stages of division; **daughter** ~ or **mother** ~, according to their development.

**Skel'eton** (*σκελετὸς*, mummy), any framework which persists after the destruction of the organ by fire or corrosion, as the remainder of the cell-wall in ash, or the starch grain after partial solution by an enzyme.

**Skin**, a thin external covering, the cuticle or epidermis.

**slashed**, laciniate.

**slate-grey**, the colour of slate, schistaceous.

**Sleep**, the repose of plants, with changes in position of organs such as leaves, due to absence of light; ~ **Move'ments**, positions taken by leaves during the night, nyctitropic movements.

**slen'der**, long and thin.

**Sli'ding Growth**, a gradual change in the relative position of vessels, fibres, etc., due to their development in a longitudinal direction.

**Slime-flux**, a flow of liquid from diseased fruit and forest trees, due to the attacks of various Fungi, producing a fermentation of the cortical elements down to the cambium zone (Massee); **Slime-Fun'gi** = MYXOGASTRES.

**sli'my**, mucous.

**Sling-fruit**, applied to any fruit which by possessing contractile tissue projects its seeds to a distance.

**Slip**, (1) described by Loudon as a shoot from the collar or lower part of the stem of a plant, used for propagation, stem-suckers; (2) a popular name for CUTTING, but not used by cultivators.

**smarag'dine**, *smarag'dinus* (*σμάραγδος*, an emerald), emerald green.

**Smil'acine**, a crystalline body occurring in the roots of the officinal sarsaparilla.

**smo'ky**, fumosus.

**smooth**, (1) not rough, opposed to scabrous, free from hairs; (2) glabrous, as opposed to pubescent.

**Smut**, disease in grain produced by various species of *Ustilago*.

**Snail-plants**, those which are supposed to be fertilized by snails and slugs, malacophilous plants.

**snow-white**, white of absolute purity, niveus.

**Snow-leaves**, Jungner's name for certain leaves which are thin or leathery, folded in the bud, and with no pulvinus; winter-leaves.

**Sob'ole**, *Sob'oles* (Lat., a sprout), a shoot, especially from the ground **sobolif'erous** (*fero*, I bear), bearing vigorous shoots.

**so'cial** (*socialis*, pertaining to companionship), when individuals of the same species usually grow in company, and occupy a considerable extent of ground.

**Soci'ety (Plant)** see ASSOCIATION.

**soft**, applied to tissue which readily yields to the touch; ~ **Bast**, the tissue of sieve-tubes and parenchyma, opposed to the HARD BAST of layers of fibres.

**Sola'nin**, a poisonous crystallizable alkaloid in many species of *Solanum*, especially in *S. nigrum*, Linn., the potato, and the tomato.

**So'lar** (*sol*, *solis*, the sun) **Plants**, Grew's name for those which twine with the sun, that is, dextrorse; **Sola'rium**, in botanic gardens a spot for exposing plants to the full rays of the sun.

**sol'dered**, united together.

**sol'eaeform**, *soleaeform'is* (*solea*, a sandal, *forma*, shape), slipper-shaped, almost resembling an hour-glass.

**Solena'idy** (σωλήν, a tube, αἰδοῖα, genitals), the conversion of the genitalia into barren tubes (Morren); **solenoste'lic** (στήλη, a pillar), having a tubular stele with internal and external phloëm (Jeffrey).

**sol'id**, *sol'idus* (Lat.), not hollow, free from cavities; ~ **Bulb** = CORM.

**sol'itary**, *solita'rius* (Lat., lonely), single, only one from the same place; Stokes used this for monotypic genera.

**solu'bilis** (Lat., that may be loosed), separating into portions or pieces; **Solubil'ity**, *Solubil'itas*, the condition of being readily loosed.

**solute'**, *solu'tus* (Lat., unbound), free, not adherent, becoming separate; **Solu'tion**, the detachment of various whorls normally adherent; the opposite of ADHESION.

**So'ma** (σῶμα, a body), the body as distinguished from the germ or reproductive portion (L. H. Bailey), pl. **So'mata**, granules of any kind; **So'ma-plasm** (πλάσμα, moulded), Weismann's term for the protoplasm of the body or vegetative portion, in opposition to the germ-plasm; **Somat'ia**, starch-like structures in the fovilla of pollen-grains (Saccardo); **somat'ic Cells**, cells not specially modified, the opposite of reproductive cells; **somatogen'ic** (γένος, offspring), Weismann's word for "acquired characters"; **Somatot'ropism** (τροπή, a turning), Van Tieghem's term for the directive influence of the substratum on the growth of an organism; frequently shortened to **Somat'ropism**; adj. **somatrop'ic**.

**soot'y**, fuliginous.

**Sor'bin**, a glucose occurring in *Pyrus*, some species of which were formerly ranked under *Sorbus*.

**sor'did**, *sor'didus* (Lat., fouled), dirty in tint, chiefly applied to pappus when of an impure white; **sordidis'simum**, very dirty coloured, grey.

**Sorede'** (σωρός, a heap), a proposed emendation of **Sore'dium**, pl. **Sore'dia**, in Lichens a single algal cell or group of them, enveloped in hyphal tissue, which is able to grow at once into a thallus when detached; a brood-bud; **sore'dial**, pertaining to a soredium; ~ **Branch**, a branch produced by development of a soredium into a new thallus, while still attached to the mother-thallus; **sore'diate**, *soredia'tus*, bearing small surface patches; **soredii'ferous** (*fero*, I bear), bearing soredia.

**Sore'ma** (σώρευμα, what is heaped), a heap of carpels belonging to one flower; **Soreu'ma** = SOREDIUM (Henslow).

**Sor'ghin**, Passerini's term for the product of transformation of **Sorghoru'bin**, the natural pigment of *Sorghum vulgare*, Pers.

**sorif'erous** (σωρός, a heap, *fero*, I bear), bearing sori; **Soro'se**, *Soro'sis*, *Soro'sus*, a fleshy multiple fruit, as a mulberry or pineapple; adj. **sor'ose**.

**Sor'rowful Flow'ers**, "those which exale their odours only at certain hours of the day, as *Pelargonium triste*," Soland. (Crozier); *cf.* PLANTAE TRISTAE.

**So'rus**, pl. **So'ri** (*σωρός*, a heap), (1) a cluster of sporangia in Ferns; (2) in Synchitrieae, a group of sporangia from a single swarm-cell; (3) a heap of soredia forming a powdery mass on the surface of a thallus.

**spadic'eous**, *spadi'ceus* (*σπάδιξ*, a palm-branch), (1) as to colour, date-brown; (2) having the nature of, or bearing a spadix; **spa'dicose**, resembling a spadix; **Spa'dix**, a spike with a fleshy axis, as in Aroids.

**Span**, usually about nine inches, between the extremities of the thumb and little finger, DODRANS; sometimes the small span of seven inches is intended, the space between the thumb and middle finger when stretched out.

**Spanan'thus** (*σπανός*, scarce, *ἄνθος*, a flower), having few flowers.

**Sparga'nium-cor'tex** (the genus *Sparganium*, + CORTEX), applied to fossil stems with a vertical system of fibrous strands which do not anastomose, as *Medullosa*.

**spart'oid** (*σπάρτος*, esparto grass, *εἶδος*, resemblance), used by Fayod for persistent mycelium which is corticated.

**sparse**, *spar'sus* (Lat., spread open), scattered; **sparsiflo'rus** (*flos, floris*, a flower), with scattered flowers; **sparsifo'lius** (*folium*, a leaf), with scattered leaves.

**Spathe**, *Spath'a* (*σπάθη*, a spatula), a large bract enclosing a flower cluster, usually a spadix; ~ **Valves**, the bract-like envelopes beneath the flowers in certain Monocotyledons, as *Allium* and *Narcissus*; **spatha'ceous**, *-ceus* (+ *aceus*), spathe-bearing, or of the nature of a spathe; **spathae'us**, ‡ having a very large spathe (Lindley); **spa'thal**, **spa'thate**, **spathed**, furnished with a spathe; **Spathel'la**, an old name for the glumes of grasses, sometimes also the paleae were included; **Spathel'lula**, a palea of a grass; **Spathil'la**, ‡ a secondary spathe, as in the inflorescence of Palms; **spa'those**, spathe-like; **spath'ulate**, *spathula'tus*, **spat'ulate**, oblong, with the basal (proximal) end attenuated like a druggist's spatula.

**Spawn**, mycelium.

**Spe'cies** (Lat., a shape, kind, or sort), the particular kind, the unit in classification, the aggregate of all those individuals which have the same constant and distinctive characters; they may be distinguished as **biolog'ic** ~, **morpholog'ic** ~, or **physiolog'ic** ~, according to the basis of discrimination; ~ **Hy'brid**, a hybrid between two species of the same genus; ~ **Soror'es**, Schröter's term for any two species of Uredineae which inhabit two distinct hosts, but show no morphological difference, as in *Puccinia*; **specif'ic**, relating to a species; ~ **Cen'tre**, the particular spot where the species is supposed to have originated; ~ **Char'acter**, the diagnostic which separates one species from another; ~ **Name**, the Latin appellative appropriated to a given species, usually an adjective, but sometimes a substantive used adjectivally.

**Spec'imen** (Lat., an example), a plant or portion of one, prepared for botanic study.

**spec'tans** (Lat., looking), "se in vicem *spectantia* folia," = opposite leaved.

**Spec'trophore** (*spectrum*, an appearance, *φορέω*, I carry), apparatus designed by Reinke to determine the action of the different rays of light in the elimination of oxygen by plants.

**Speir'anthy** (*σπεῖρα*, a twist, *ἄνθος*, a flower), when a flower assumes a twisted form.

**Speire'ma** (*σπείρημα*, a fold or coil), in Lichens, a gonidium.

**Sper'gulin**, a fluorescent substance occurring in the seeds of *Spergula*.

**Sperm** (*σπέρμα*, a seed) **Cell**, a male reproductive cell, as (*a*) an anther

ozoid, (*b*) a pollen-grain; ~ **Chro'matin**, that portion of the male nucleus which is receptive of staining; ~ **Nu'cleus**, the nucleus of a male gamete (male pronucleus) which coalesces with the nucleus of an oosphere (female pronucleus) to form a germ-nucleus; **Sperm'agone**, *Spermago'nium* (*γόνος*, offspring) = SPERMOGONE, etc.; **Spermamoe'bae** (+ AMOEBAE), Pringsheim's term for certain specialised portions of the antheridial protoplasm of Saprolegniae, which fertilise the oosphere; **Sperman'gium** (*ἀγγεῖον*, a vessel), the sporangium of an Alga (Lindley); **Sperm'aphore**, *Spermaphor'ium* (*φορέω*, I carry), (1) the placenta; (2) the funicle; **Sperm'aphytes** (*φυτόν*, a plant), used to include both Angiosperms and Gymnosperms; all plants except Cryptogams (Sachs); adj. **sperm-aphyt'ic**; **Spermapod'ium** or **Spermapodoph'orum** (*πούς*, *ποδός*, a foot), a branched gynophore in Umbelliferae; **Sperma'rium**, Gibson's term for **Sperm'ary**, employed by T. J. Parker for a male organ of reproduction, as a gamete; **Sperm'atange**, *Spermatan'gium* (*ἀγγεῖον*, a vessel), (1) the antheridium of Bangiaceae (T. Johnson); (2) by A. Braun employed for spermogonia and antheridia generally; **Spermat'ia**, pl. of **Sperma'tium**, male non-motile gamete-cell; **Sperm'atid**, *Spermatid'ium* (*εἶδος*, resemblance), (1) the mother-cell of antherozoids; (2) formerly used for an Algal spore; **spermatif'erous** (*fero*, I bear); **spermatig'erous** (*gero*, I bear) bearing spermatia; **Spermatoconid'ium** (+ CONIDIUM), A. Braun's term for SPERMATIUM; **Spermato'cyst**, *Spermatocystid'ium* (*κύστις*, a bag), the mother-cell of antheridia, especially of Mosses; **Sperm'atocyte** (*κύτος*, a hollow), (1) Goebel's term for the preceding; (2) used by Shaw for four primary organs, each containing a pair of blepharoplastoids, the eight secondary or spermatid mother-cells each contains two blepharoplasts (Coult. Bot. Gaz. xxvi., Dec. 1898, p. 449); **Spermatocy'tium** (*κύτος*, a hollow vessel), a simple sporangium containing spermatozoids (A. Braun); **Spermatogam'ete**, Hartog's term for a male gamete; **Spermatogen'esis** (*γένεσις*, a beginning), the development of the male elements, antherozoids, pollen-grains, and analogous bodies; **Spermatogonid'ium** (+ GONIDIUM), A. Braun's term for SPERMATOZOID; **Spermatogo'nium** (*γόνος*, offspring), the male gametogonium, a cell which divides to form gametes, or itself passes into the state of one (Hartog); **Spermatoid'ium**, one of "small cells containing gonidia in Algae" (Lindley); **Spermatokal'ium** (*καλιά*, a cabin), name given by Gibelli to the perithecium of *Verrucaria*; **spermatokine'tic** (*κινητικός*, having the power of movement), tending to produce the male element in plants; **Sperm'atophore** (*φορέω*, I carry), a structure bearing a spermatium; **Sperm'atophyte** (*φυτόν*, a plant), a Phanerogam, a plant with true seeds; **Sperm'atoplasm** (*πλάσμα*, moulded), the protoplasm of a male cell; **Sperm'atoplast** (*πλαστός*, moulded), a male sexual cell; **Spermatosphae'ria**, pl. (*σφαῖρα*, a ball), Itzigsohn's term for a presumed male body in *Spirogyra*, declared by Pringsheim to be an undoubted error; **Spermatotham'nia** (*θάμνος*, a bush), the antheridial filaments of Rhodophyceae (A. Braun); **Spermatozo'id** (*ζῷον*, a living creature, *εἶδος*, resemblance), a male ciliated motile gamete produced within an antheridium; **Spermatozo'on**, by Shaw taken as the product of a blepharoplast; **sperm'ic**, relating to a seed (Crozier); **spermid'eus**, producing seed; **Spermid'ium** = ACHENE; **spermocar'pous** (*καρπός*, fruit), has

been used as a synonym of PHANEROGAMOUS ; **Sperm'oderm**, *Spermoder'mis* (δέρμα, a skin), the covering of a seed, the seedcoat ; **Spermodoph'orum** (φορέω, I carry), the gynophore in Umbelliferae ; **Spermogem'ma** (*gemma*, a bud), Caruel's term for ARCHEGONIUM ; **Sperm'ogone**, *Spermogon'ium* (γόνος, offspring), a cup-shaped receptacle in which spermatia are abjointed, differing from a pycnidium by its smaller spores ; **Sperm'o-nu'cleus** = SPERM-NUCLEUS ; **sperm'ous** = SPERMIC ; **Sperm'ophore**, *Spermoph'orum* ‡ (φορέω, I carry), (1) the gynophore in Umbelliferae ; (2) the placenta ; (3) the modified shoot of the thallus of certain Algae, producing male organs (Darbishire) ; **Sperm'ophyte** (φυτόν, a plant), cited by Crozier for a Phanerogam or flowering plant ; **Spermothe'ca** ‡ (θήκη, a case) = PERICARP ; **Sperm'um**, a seed or its analogue.

**sphac'elate** (σφάκελος, gangrene), dark and withered as though dead ; **Sphacel'ia**, formerly a genus, now known to be the conidial stage of ergot, *Claviceps purpurea*, Tul. ; **Sphac'elic Ac'id** is derived from ergot (Tubeuf).

**Sphaeraph'ides** (σφαῖρα, a sphere, ῥαφίς, a needle), clusters of crystals in plant-cells of a more or less spherical form ; **Sphere-crys'tals** and **Sphe'ro-crys'tal** are synonyms ; **Sphere-yeast**, a growth form of *Mucor* which resembles yeast ; **Sphaerench'yma** (ἔγχυμα, an infusion), spherical cells composing cellular tissue, as the pulp of fruits.

**sphaeria'ceous**, resembling or allied to the Fungus genus *Sphaeria*.

**Sphaer'ites** (σφαῖρα, a sphere), starch grains which have been asserted to be crystallized bodies ; **Sphaerobacte'ria** (+ BACTERIA), bacteria with extremely small rounded cells which become detached ; **Sphaeroblas'tus** ‡ (βλαστός, a bud), a cotyledon which rises above ground, bearing at its apex a rounded tumour (Lindley) ; **sphaerocar'pous** (καρπός, fruit), when a fruit is globular ; **sphaeroceph'alus** (κεφαλή, a head), having flowers in a close globular head ; *cf.* SOROSIS ; **Sphaerochor'isis** (+ CHORISIS), the division of an axis in all directions, as in "witches-broom," etc. (Fermond) ; **Sphae'ro-crys'tals** = SPHAERAPHIDES ; **Sphaerophy'tum** (φυτόν, a plant), a Fern, its sporangia being globular ; **sphae'roid** (εἶδος, resemblance), globular, any solid figure approaching that of a sphere ; ~ **Cell**, a reserve-receptacle in some calcareous Lichens (Zukal) ; syn., **spheroi'dal** ; **Sphae'rospore**, *Sphaerospor'a* (σπορά, a seed), a name proposed in substitution for TETRASPORE ; **Sphaer'ula**, a globose peridium emitting sporidia buried in pulp (Lindley) ; ~ **ascig'era**, the receptacle of certain Fungi (Lindley) ; **Sphe'roblast** (βλαστός, a bud or shoot), a wood-ball on the beech and other trees, from a dormant eye, disconnected from its vascular bundles (Ward) ; **spher'ical**, *sphe'ricus*, relating to a sphere ; *sphe'ricus Li'mes* = ORBICULAR ; **Spher'ules**, rounded bodies occurring in the sporangioles of *Selaginella* (Janse).

**Sphagne'tum**, Warming's term for a *Sphagnum* bog ; **sphag'nous**, resembling or allied to the genus *Sphagnum*.

**Sphalerocar'pum, -pium** (σφαλερός, unsteady, καρπός, fruit), an accessory fruit, as an achene in a baccate calyx-tube.

**Sphingoph'ilae** (σφίγξ = Hawk-moth, φιλέω, I love), flowers fertilized by hawkmoths and nocturnal lepidoptera ; they have a strong sweet smell, and honey in the flower-tube (H. Mueller) ; adj. **sphingoph'ilous**.

**Sphrigo'sis** (σφριγάω, to be full of sap), rankness (Berkeley).

**Spi'ca** (Lat.), = SPIKE.

**spi'cate**, *spica'tus* (Lat., spiked), like a spike, or disposed in a spike ;

**spi'ciform,** *spiciform'is* (*forma*, shape), spike-like; **spicif'erous,** *-rus* (*fero*, I bear); **spiciflor'us** (*flos, floris*, a flower); **spicig'erous,** *-rus* (*gero*, I bear), bearing flower spikes; **spi'cose,** and **spi'cous** (Crozier) = SPICATE; **Spic'ule,** *Spi'cula* (*spiculum*, a small needle), (1) a diminutive or secondary spike; (2) the point of a basidium in Fungi; also (3) their aciculae; (4) a fine, fleshy, erect, point (Lindley); **spic'ular,** spiky; **spic'ulate,** *spicula'tus*, with a surface covered with fine points; **Spicula'tion,** Nylander's term for a hyphal constriction in spore-formation, the extremity being left as a spicule.

**Spike,** *Spi'ca* (Lat., an ear of corn), (1) an indeterminate inflorescence, with flowers sessile on a common elongated axis; (2) an aggregation of sporophylls at the apex of the shoot; **com'pound ~,** an inflorescence consisting of spikes.

**Spi'kelet,** *Spic'ula*, a secondary spike, a cluster of one or more flowers subtended by a common pair of glumes, as in grasses.

**Spil'us** ‡ (*σπῖλος*, a stain), the hilum in grasses.

**Spi'na** (Lat.) = SPINE.

**Spin'dle,** any structure which in shape suggests a thread-spindle; **~ Fi'bres,** the achromatic filaments which make up the nuclear spindle; **~ Pole,** an extremity of the nuclear spindle; **~ Hairs,** resembling malpighiaceous hairs, attached centrally, with the ends hooked (De Bary); **~ shaped** = FUSIFORM; **Achromat'ic ~,** or **Nu'clear ~,** the thread-like protoplasmic figures in nuclear division between the poles.

**Spine,** *Spi'na* (Lat., a thorn), a sharp-pointed woody or hardened body, usually a branch, sometimes a petiole, stipule, or other part; **Spine-arm,** in the genus *Najas*, the representative of a barren stigma (Rendle); **~ Cell,** (1) a transitional **~** ARM (Rendle); (2) in *Chara*, certain cells of the cortex on the internodes, ending in a spine; **Spines** of the leaves, as of Holly, hardened extremities of the lobes, or spiny elevations; **Spinel'la** (dim. of *spina*), a prickle; **spinello'sus,** armed with small spines or hairs; **spines'cent,** *spines'cens*, ending in a spine or sharp point; **spinif'erous,** *-rus* (*fero*, I bear), bearing thorns; **spi'niform** (*forma*, shape), thorn-like; **spi'niger, spinig'erous** (*gero*, I bear), bearing or producing thorns; **spinifo'lius** (*folium*, a leaf), having spiny leaves; **spinicar'pous** (*καρπός*, fruit), with spiny fruit; **spi'nose,** *spino'sus*, **spi'nous,** spiny, having spines; **Spin'ula** (Lat.), **Spin'ule,** a diminutive spine; **spinules'cent,** slightly spiny, or having spinules; **spinulif'erous,** *-rus* (*fero*, I bear), having small spines; **spin'ulose,** *spinulo'sus*, with small spines or spinules; **spi'ny,** beset with spines, or resembling a spine.

**spi'ral,** *spira'lis* (*spira*, a coil), as though wound round an axis; **~ Duct,** a spiral vessel; **~ Flow'er,** when the members are arranged in spirals and not in whorls; **~ Mark'ings,** secondary deposits in tracheids; **~ Phyllotax'y,** see PHYLLOTAXY; **~ Tor'sion** = TORSION; **~ Ves'sels,** ducts having markings in a spiral form.

**Spi'ralism** (*σπειρώδης*, spiral-shaped), monstrosity of a flower due to torsion.

**Spire** (*σπεῖρα*, a twist), (1) a young leaf or shoot of grass; (2) "the continuation of the trunk in excurrent trees like pines" (Crozier); (3) one turn of a coil or twist.

**Spi'rem** (*σπείρημα*, a coil), a preliminary stage of nuclear division as in *Lilium*, the nucleus assuming an involved filamentous condition or "ribbon" from which the chromosomes are formed.

**Spi'ricle** (*σπεῖρα*, a twist), a delicate coiled thread in the surface cells of certain seeds and achenes, which

uncoil when moistened, as in *Collomia*; **Spiril'lum**, pl. **Spiril'la**, (1) a term for ANTHEROZOID; (2) also see next; **Spirobacter'ia**, pl. (+ BACTERIUM), bacteria which form spirally curved filaments, as the genus *Spirillum*, Cohn; **Spirofibril'lae**, pl. (*cf.* FIBRIL), Fayod's term for the spirally twisted hollow threads which he asserts constitute all living protoplasm; **Spi'roism**, the coiling of an organ in development (Morren); **Spirolo'beae** (λοβός, a lobe), Cruciferae which have cotyledons folded transversely and radicle dorsal; **spirolo'bous**, with the cotyledons spirally rolled up, shown thus o || ||; **Spi'rospart** (σπαρτός, sown, scattered), hypothetically the finest spirals of hyaloplasm, which constitute the SPIROFIBRILLAE (Fayod).

**Spith'ama** (σπιθαμή, a span), a span of seven inches, from the tip of the thumb to that of the forefinger; **spithamae'us** (Mod. Lat.), measuring a short span.

**splen'dens** (Lat., gleaming), glittering or shining.

**Splint**, a forester's term for ALBURNUM or Sapwood.

**split**, cleft or divided, parted; ~ **Fruit** = CREMOCARP; ~ **Lay'er**, a loose felt of hyphae in *Geaster*, connected with the inner peridium, and torn into flakes at maturity.

**spodoch'rous** (σποδός, ashes, χρόα, colour), of a grey tint.

**Spong'elet** = SPONGIOLE; **Spong'iole** (*spongia*, a sponge), a name given to the root-tip, formerly thought to be a special absorbing organ, the Epiblema of Schleiden; *Spong'iola radica'lis*, De Candolle's name for the root-cap; ~ *pistilla'ris*, the extremity of the pistil, the stigma; ~ *semina'lis*, the caruncle of certain seeds; **spongio'sus** (Lat.), spongy, soft; **spong'y**, having the texture of a sponge, cellular and containing air, as in many seed coats; ~ **Cor'tex**, cortical tissue with air-bearing intercellular spaces, frequent in water-plants; ~ **Parench'yma**, loosely aggregated tissue, or having conspicuous intercellular spaces.

**Sponsa'lia** (Lat., espousals), **Planta'rum**, ‡ = ANTHESIS; the fertilization period.

**sponta'neous** (*spontaneus*, voluntary) **Genera'tion**, the assumed origin of living organisms from non-living matter.

**spoon'form**, "having the inner surface of a leaf concave or dish-shaped, as the outer leaves of a cabbage-head" (Crozier).

**Spor'a** (σπορά, a seed), = SPORE; ~ **cellulo'sa**, ~ **compos'ita**, ~ **multilocula'ris** = SPORIDESM; **spor'al**, relating to a spore; ~ **Arrest'**, partial or complete arrest of the development of the spores themselves, and consequent loss of reproductive function (Bower).

**sporad'ic** (σποραδικός, dispersed), widely dispersed or scattered.

**Spor'ange**, **Sporan'gium** (σπορά, a seed, ἀγγεῖον, a vessel), (1) a sac endogenously producing SPORES; (2) ‡ "sometimes applied to the volva among Fungals" (Lindley); **Sporangid'ium**, (1) the columella of Mosses; (2) "the spore-case of certain Fungals" (Lindley); **Sporang'iole**, *Sporan'giola* or *Sporan'giolum*, (1) a small sporangium in Mucorini produced in addition to the larger sporangia; (2) formerly used for ASCUS; (3) organs of an endophyte in *Selaginella*, composed of filaments rolled into the shape of a ball (Janse); (4) *Sporangiolum* is used in a double sense by Lindley (*a*) for spore, (*b*) a case containing sporidia; **Sporangiolif'erum** (*fero*, I bear), the axis on which the thecae of Ferns are borne (Lindley); **sporangif'erous**, bearing sporangia; **Sporan'giophore**, *Sporangioph'orum* (φορέω, I carry), a sporophore bearing a sporangium, such as the sporophyll in *Equisetum*, or the columella in Ferns; **sporangioph'orous**, bearing sporangiophores;

**Sporan'gism**, the condition of producing sporangia ; **Sporan'giospore** (*σπορά*, a seed), a term proposed for the spores of Myxogastres ; **Sporan'gium**, *cf.* SPORANGE.

**Spore**, *Spor'a* (*σπορά*, a seed), a cell which becomes free and capable of direct development into a new bion ; in Cryptogams the analogue of seed in Phanerogams, understood by Saccardo as a BASIDIOSPORE ; further particularized by C. Macmillan into **Pri'mo-**, **Secun'do-**, **Ter'tio-**, **Quar'to-**, and **Quin'to-spores**, according to their assumed development; ~ **Bul'bils**, abortive apothecia in certain Lichens; ~ **Case**, = SPORANGIUM ; ~ **Cell**, a spore, or a cell which gives rise to a spore (Crozier) ; ~ **Group**, = SPORIDESM ; ~ **Hy'brid**, a hybrid arising in the gametophytic stage ; ~ **Init'ials**, small processes borne by the fertile hyphae of *Graphiola*, which produce spores by one or more bipartitions of their contents (E. Fischer); ~ **Lay'er**, a layer of mother-cells of the spores of *Phascum* ; ~ **Sport**, a variation arising from a sexual reproductive act ; *cf.* ~ **Hy'brid** ; **Spor'eling**, a young plant from a germinated spore ; **Spor'eplasm** (*πλάσμα*, moulded), the protoplasm in a sporangium destined to produce spores ; **Spor'id**, see SPORIDIUM ; **Spor'idesm** (*δεσμός*, a bond), a pluricellular body, becoming free like a spore, in which each cell is an independent spore with power of separate germination ; **sporidif'erus** (+ SPORIDIUM, *fero*, I bear), bearing sporidia ; **sporidiform'is** (*forma*, shape), shaped like a sporidium ; **sporidig'erus** (*gero*, I bear), sporidifer'us ; **Sporid'iole**, *Sporidi'olum*, pl. *Sporid'iola*, formerly used for spores in the lower Cryptogams ; **Sporid'ium**, (1) a synonym or diminutive of SPORE, or a granule which resembles a spore (Fries); (2) a spore abjointed from a promycelium ; (3) by Saccardo the term is used as equivalent to ASCOSPORE ; **Sporido'chia**, **Sporido'chium** (*δοχεῖον*, a holder), "the receptacle or even the stipe of certain Fungals" (Lindley) ; **spor'o-antherid'ic**, Brebner's term for that condition of *Haplospora* when spores and antheridia are borne by distinct individuals ; ~ **-hermaph'rodite**, when some are hermaphrodite and others bear asexually produced spores ; ~ **-oog'onous**, bearing spores in one individual and oogonia in another ; **Spor'oblast** (*βλαστός*, a bud), Koerber's word for MERISPORE ; **Spor'ocarp**, *Sporocar'pium* (*καρπός*, fruit), (1) a many-celled body resulting from a sexual act as from an archicarp, serving for the formation of spores ; (2) the indusium or body enclosing the sporangia in Hydropterideae ; **Spor'ocide** (*cido*, stem of *caedo*, I cut), a germicide, any agent which destroys the vitality of spores or germs ; **Sporoclad'ium** (*κλάδος*, a branch), a branch on which the reproductive bodies of some Algae are found ; **Sporoconid'ium** (+ CONIDIUM), used by A. Braun for ACROSPORE ; **Sporocys'ta** (*κύστις*, a bag), the sporangium of an Alga ; **Spor'oderm**, *Sporoderm'is* (*δερμα*, a skin), the integument of a spore ; **Spor'ocyte** (*κύτος*, a hollow), Goebel's term for the mother-cell of a spore ; **Sporocy'tium**, a simple sporangium containing spores (A. Braun) ; **Sporodo'chium**, pl. **Sporodo'chia** (*δοχεῖον*, a holder), the sporiferous apparatus in Fungi belonging to Tuberculariae, *cf.* SPORIDOCHIA ; **Sporogam'ia** (*γάμος*, marriage), term which has been suggested for the heterosporous Cryptogams ; **Sporogem'ma** (*gemma*, a bud), A. Braun's term for the oogonium (nucule) of *Chara* ; **Spor'ogen** (*γένος*, offspring), a plant which bears spores, a Cryptogam ; **sporog'enous**, producing spores ; ~ **Fil'aments**, Oltmann's term for certain outgrowths of the fertilized carpogonium of

*Dudresnaya*; the ooblastema-filaments of Schmitz; ~ **Lay'er** = HYMENIUM; ~ **Nu'cleus**, the nucleus resulting from the fusion of the nuclei of the spermatium and the carpogonium of Florideae (Oltmann); **Spor'ogone**, **Sporogo'nium** (*γονή*, progeny), the sporocarp in Muscineae, the whole product of a sexual act remaining attached to the oophyte or plant bearing the sexual organs; **spor'oid** (*εἶδος*, resemblance), spore-like (Crozier); **Sporomyce'tes** (*μύκης*, a mushroom), Marchand's term for a group to comprise Myco-, Siphon-, Theca-, and Basidio-mycetes; **Spor'ophore**, *Sporoph'orum* (*φορέω*, I carry), (1) ‡ the PLACENTA; (2) a branch or portion of a thallus which bears one or more spores; (3) in Ferns and Mosses, the SPOROPHYTE; **Sporophy'as**, A. Braun's term, the same as **Sporophyd'ium** (dimin. of *φυάς*, a shoot), T. F. Allen's term for the nucule of Characeae while still unfertilized; **Spor'ophyll**, *Sporophyl'lum* (*φύλλον*, a leaf), (1) a leaf which bears spores; (2) a leaf-like division of the thallus of an Alga bearing fruit, as in *Carpoclonium*, adj. **sporophyl'lary**; ~ **Leaves**, stamens and pistils; **Spor'ophyte** (*φυτόν*, a plant), in Ferns and Mosses, the plant in the life-cycle of alternation which produces spores; **Sporosteg'ium** (*στέγος*, a covering), the cellular envelope of the nucule in *Chara* (Allen); **Sporota'mium** ‡ (*ταμεῖον*, a storehouse), the cellular layer immediately beneath the disk of the shield of a Lichen; **Sporothala'mia** (*θαλαμος*, a bed-chamber), compound or branched sporophores, as of fruticose Lichens or Agarics (A. Braun); **Spor'ozoid** (*ζῷον*, a living creature, *εἶδος*, resemblance), a ZOOSPORE.

**Sport**, variation starting from a bud or seed.

**Spor'ula**, **Spor'ule** (dim. of SPORA), (1) a small spore; (2) a spore produced in a perithecium, but not in an ascus (Ellis and Everhart), formerly used vaguely for spore; **sporulif'erous**, *-rus* (*fero*, I bear); **sporulig'erus** (*gero*, I bear), bearing sporules; **sporulig'enous** (*γένος*, offspring), producing sporules; **Sporula'tion**, the production of spores (Crozier).

**spot'ted**, when colour is disposed in spots on a ground of a different colour.

**spread'ing**, having a gradually outward direction, as petals from the ovary.

**Spring-wood**, the wood produced early in the year, characterized by larger ducts and cells than the later growths.

**Sprout**, a shoot or germinated seed; ~ **Cell**, one produced by sprouting, or vegetative growth; ~ **Chain**, a chain of cells so produced; ~ **Gem'ma**, = CHAIN-GEMMA; ~ **Germina'tion**, the germination of a spore in which a small process, or germ-cell, protrudes from the surface, becomes cylindric, and finally abjoints as a SPROUT-CELL.

**sprout'ing**, the form of an excrescence in a cell, becoming cut off by a transverse wall; ~ **Fun'gus**, growth-form in which the thallus consists of a sprout-cell or chain.

**spumes'cent**, *spumes'cens* (*spumeus*, foamy), froth-like in appearance; **spu'mose**, *spumo'sus*, frothy.

**Spur**, (1) a hollow and slender extension of some part of the flower, usually nectariferous, as the calyx of Larkspur or the corolla of the Violet; (2) sometimes a solid spur-like process; (3) a contracted lateral bearing shoot, sometimes, in forestry, with a few foliage leaves in a tuft, and a terminal bud; (4) a buttress-like projection of a tree-trunk; (5) see ERGOT; **fo'liar** ~, a short branch, bearing leaves only; **fruit** ~, a short branch which bears blossom buds, as in the Peach; **spurred**, calcarate, producing a spur.

**spu'rious**, *spur'ius* (Lat., illegitimate), counterfeit, false ; ~ **Branch**, = PSEUDORAMULUS ; ~ **Dissep'iment**, a partition in fruit but not from the primary infolding of the margins of a carpel or upward growth of the torus ; ~ **Fruit** = PSEUDOCARP ; ~ **Tis'sue**, cell-aggregation of felted hyphae in Agarics, or of coenocytes in certain Algae ; ~ **Whorl**, organs developed at different times, which, by some displacement, appear at the same level.

**Squa'ma** (Lat., a scale), a scale of any sort, usually the homologue of a leaf ; ~ **fructif'era**, a seminiferous scale ; **squama'ceous** (+ aceous), scaly ; **squa'mate**, *squama'tus*, furnished with scales ; **Squama'tio**, the unnatural formation of rosettes of scale-like leaves as in the Rose-Willow ; **Squamel'la**, diminutive of SQUAMA, a scale of the second order, or reduced in size, as in the disk of Composites ; **squamellif'erous**, *-us* (*fero*, I bear), scale-bearing ; **squamel'liform** (*forma*-shape), shaped like a scale ; **Squamel'lula**, (1) a sub-division of the pappus-limb in Compositae ; (2) a scale-like appendage within the tube of certain corollas ; **squamif'erous**, *-rus* (*fero*, I bear), bearing scales ; **squamiflo'rus** (*flos*, *floris*, a flower), having a perianth of scale-like bracts, but not disposed round an axis as in Coniferae ; **squa'miform**, *squamiform'is* (*forma*, shape), scale-like ; **squamig'erous** (*gero*, I bear), scale-bearing ; **squa'moid** (*εἶδος*, resemblance), squamiform (Crozier) ; **squa'mose**, *squamo'sus*, **squa'mous**, scaly or scale-like ; ~ **Bulb** = SCALY BULB (Crozier) ; **squa'mulate** = SQUAMULOSE (Crozier) ; **Squa'mule**, *Squam'ula*, the hypogynous scale of grasses, the lodicule ; **squa'muliform**, *squamuliform'is* (*forma*, shape), resembling a small scale ; **squa'mulose**, *squamulo'sus*, beset with small scales.

**squar'rose**, *squarro'sus*, **squar'rous** (Lat., rough, scurfy), rough or scurfy with spreading and outstanding processes, as the tips of bracts ; **squarro'so-denta'tus**, having teeth which do not lie in the plane of the leaf, but at an angle ; ~ **squar'rulose**, *squarrulo'sus*, diminutive of squarrose.

**stag-head'ed**, a forester's term for a tree which is bare of leaves at the top.

**Stalk**, any lengthened support of an organ, as the seta of a Moss ; **stalked**, borne on a stalk ; ~ **Gland**, a glandular hair ; **Stalk'let**, a secondary petiole, the stalk of leaflets.

**Sta'men**, pl. *Sta'mina*, or **Sta'mens** (*στήμων*, a filament), a male sporophyll in a flower, one of the elements of an androecium consisting of anther and filament ; **ster'ile** ~ a body belonging to the series of stamens, but without pollen ; **stam'inal**, *stamina'lis*, *stamina'ris*, **stamin'eal**, *staminea'lis*, relating to stamens, or consisting of stamens ; **stam'inal Col'umn** = ANDROPHORE ; ~ **Leaves**, the stamens regarded as metamorphosed leaves ; **Stam'inalpode** (*πούς*, *ποδός*, a foot), Goethart's name for the organs in the androecium of Malvaceae which produce the stamens on their margins ; **stam'inate**, applied to flowers which are wholly male ; **stamin'eous**, *-neus* (Lat., consisting of threads), relating to stamens ; **Staminid'ium**, pl. **Staminid'ia** = ANTHERIDIA ; **staminife'rous**, *-rus* (*fero*, I bear), **staminig'erous** (*gero*, I bear), stamen-bearing ; **Sta'minode**, *Stamino'dium*, (1) a sterile or abortive stamen, or its homologue, without an anther ; (2) = ANTHERIDIUM (Gray's Manual, ed. i., p. xxxvi) ; **Stam'inody**, the conversion of other floral organs into stamens ; **stam'inose**, *stamino'sus*, when the stamens form a marked feature of the flower.

**Stan'dard**, (1) the fifth or posterior

petal of a papilionaceous corolla; (2) a tree or bush with a clear stem.

**stans** (Lat., standing), supporting itself in an erect position.

**Star-rings**, small central steles in the fossil Medulloseae.

**Starch**, a carbohydrate of the same percentage composition as cellulose; an amylose which occurs abundantly in grains as a reserve material in plants; ~ **Buil'der**, a plastid which forms the starch-grain; ~ **Cel'lulose**, the framework of starch-grains, remaining after the soluble parts have been removed; ~ **Genera'tors** = LEUCOPLASTIDS; ~ **Grain**, ~ **Gran'ule**, a body of definite shape, varying according to the plant which produces it, having the appearance of parallel layers around a hilum; ~ **Lay'er**, a form of Bundle Sheath, consisting of a single layer of cells filled with small grains of starch; ~ **Pro-du'cer** = LEUCOPLASTID; ~ **Star** of *Chara stelligera*, Bauer, stellate nodules or internodes on the roots, filled with starch; ~ **Sub'stance**, A. Meyer's term for the pure-starch material, apart from any associated or transformed matters which may be also present.

**star'ry**, stellate.

**starved**, when a plant or part is less developed than the normal condition, by want of nourishment.

**Stas'imorphy** (*στάσις*, a standing or pause, *μορφή*, shape), a deviation from the normal arising from arrest of development; **Stas'is**, used to denote the retardation especially of longitudinal growth.

**State**, the most trivial variation from the type.

**Sta'tion** (*statio*, a standing still), botanically means a particular locality for a given plant.

**Statosper'mus** (*στάτος*, standing still, *σπέρμα*, a seed), when a seed is straight or erect within the pericarp; **Stat'ospore** (*σπορά*, a seed), a resting spore.

**Staurogam'ia** (*σταυρός*, a stake or cross, *γάμος*, marriage), Delpino's term for cross-fertilization; adj. **staurogam'ic**; **Stau'ros**, in Diatoms, (1) the central nodule of the valve; (2) a transverse band without markings; **staurophyl'lus** (*φύλλον*, a leaf), cruciate.

**Ste'arin** (*στέαρ*, suet), an abundant ingredient of animal and vegetable fats; **Stearop'tene** (+ *πτηνός*, winged = volatile), a solid crystallizable matter allied to camphor, present in many essential oils.

**Steg'ium** (*στέγη*, a roof or covering), term proposed by Miers for the thread-like appendages sometimes found covering the style of Asclepiads; **Steg'mata**, pl. flat, tabular cells in certain Ferns, etc., containing a mass of silica in contact with their inner wall (Mettenius); also termed Covering-plate; **stegocar'pous** (*καρπός*, fruit), applied to those Mosses whose capsules have a distinct operculum.

**ste'lar** (*στήλη*, a pillar), possessing a stele; **Stele**, an axial cylinder of tissue passing from the plerome into the older tissues, in which the vascular tissue is developed; sometimes more than one, *cf.* POLYSTELY, SCHIZOSTELY; **ste'lic**, relating to a stele or its tissues.

**Stelid'ium**, pl. **Stelid'ia** (*στηλίδιον*, a small pillar), Ridley's term for the teeth of the column in *Bulbophyllum*.

**stel'late**, *stella'tus* (Lat., starry), star-shaped or radiating like the points of a star; ~ **Hairs**, hairs of a star-like form; ~ **Scales**, trichomes, discs borne by their edge or centre; **stellif'erus** (*fero*, I bear), star-bearing; **stelliform'is** (*forma*, shape), star-shaped; **stellig'erus** (*gero*, I bear), star-bearing or producing; **stella'to-pilo'sus**, covered with stellate hairs; **stelliner'vius** (*nervus*, a nerve), star-ribbed, as the leaves of *Hydrocotyle vulgaris*, Linn.; **Stel'lula** (Lat., a little star), (1) a whorl of perigonial leaves in Mosses; (2) a small rosette; **stel'-**

**lular, stel'lulate,** *stellula'tus*, diminutive of stellate.

**Stelolem'ma** (*στήλη*, a pillar, *λέμμα*, bark or skin), a sheath of thickened peridesmic or stelar tissue in angiospermous petioles (Strasburger).

**Stem**, the main ascending axis; ~ **Bud**, the plumule; ~ **-clasp'ing**, amplexicaul; ~ **Leaf**, a leaf given off from the stem, as opposed to a radical leaf; ~ **Par'asite**, a parasitic plant which lives on the stem of its host, as Loranthaceae; ~ **Ten'dril**, a tendril which is morphologically a stem structure; **subterra'nean**, ~, a rhizome; **stem'less**, having no visible stem, acaulous; **Stem'let**, a small stem, as the plumule.

**stenocar'pus** (*στένος*, narrow, *καρπός*, fruit), narrow fruited; **stenopet'alous** (*πέταλον*, a flower-leaf), narrow-petalled; **stenophyl'lous**, *-lus* (*φύλλον*, a leaf), narrow leaved; **Steno'sis**, (1) cell-formation with constriction of the original cell-wall; (2) the contraction of a passage.

**stephanocar'pus** (*στεφανώδης*, wreathing, *καρπός*, fruit), with fruit arranged so as to resemble a crown; **Stephanodophy'tum** (*φυτόν*, a plant), a plant producing an inferior achene, as Compositae; **Stepha'noum**, ‡ a synonym of CREMOCARP and CYPSELA.

**Ste'reid** (*στερεός*, solid), a lignified cell from the stereome; **Ste'reom** or **Ste'reome**, the elements of a bundle which impart strength to it, the fibres, or strengthening tissue generally (Schwendener); **Ste'reoplasm** (*πλάσμα*, moulded), the solid part of protoplasm (Naegeli).

**Sterig'ma**, pl. **Sterig'mata** (*στήριγμα*, a prop), (1) in Fungi, a stalk from which a spore is abjointed; (2) any leafy prolongation or elevated line from the blade of a leaf down the stem by decurrence; (3) Desvaux's name for CARCERULE; **Sterig'mum** is a synonym of the last definition.

**ster'ile**, *ster'ilis* (Lat.), (1) barren, as a flower destitute of pistil, or a stamen wanting the anther; (2) used for a male or staminate flower; (3) free from living organisms, such as bacteria; ~ **Basid'ium**, a body in the hymenium of Agarics like a basidium, but not producing spores, possibly a paraphysis; ~ **Cells**, cells of unknown function in the pollen-grains of *Cycas* and microspores of *Isoëtes* and *Selaginella*; **Steril'ity**, *Steril'itas* (Lat.), barrenness, incapacity of producing seeds; **Steriliza'tion**, the act of sterilizing; **ster'ilize**, to make free from living organisms or their germs.

**Ster'om** = STEREOME (Crozier).

**sternotri'bal** (*στέρνον*, the breast, *τρίβω*, I beat), Delpino's term for those flowers whose anthers are so arranged as to dust their pollen on the under part of the thorax of their insect visitors; **stern'otribe** is a synonym.

**Ste'somy** (*στήσομαι*, fut. med. of *ἵστημι*, to stop), Morren's term for an arrest of metamorphosis.

**Stichid'ium** (*στιχίδιον*, a little bladder), (1) in Rhodophyceae, a special branch of the thallus with imbedded tetragonidia; (2) = CARPOCLONIUM.

**stichocar'pus, stichocar'picus** (*στίχος*, a row, *καρπός*, fruit), when fruit is disposed along a spiral line; **stichus**, in Greek compounds = row or rank, usually vertical.

**stictopet'alus** (*στικτός*, punctured, *πέταλον*, a flower-leaf), when petals are covered with glandular points.

**Stig'ma**, pl. *Stig'mata*, or **Stig'mas** (*στίγμα*, a point), (1) that part of the pistil or style which receives the pollen; (2) a point on the spores of *Equisetum*; (3) a caducous point on the apex of the columella in Mosses; (4) an old name for STERIGMA; (5) a coloured spot in unicellular Algae; ~ **Disk**, a disk forming the stigmatic surface as in *Asclepiads*; ~ of Mosses (Hook. Musc. ed. 2) the mouth of the archegonium; **Stig'marhize** (*ῥίζα*, a root), a form of *Stigmaria*, regarded

by Renault as a root; **Stigmarhi'zome** (+RHIZOME), Renault's term for a form of Stigmaria which he holds to be a rhizome; **Stigma'ria**, roots of fossil plants having regular dotted or pitted markings; **Stigma'tae**, Van Tieghem's term for Phanerogams having stigmata; **stigmat'ic**, *stigmat'icus*, relating to the stigma; ~ **Cells**, of archegonia, = LID-CELLS; ~ **Cham'ber**, that part of the rostellum in Orchids in which the retinaculum is developed; ~ **Flu'id**, ~ **Secre'tion**, the viscid fluid secreted by the stigma at maturity, securing the adhesion of pollen grains and their subsequent germination; **Stigmat'icae**, Knuth's term for wind-fertilized flowers with conspicuous stigmas; **stigmatif'erous** (*fero*, I bear), stigma-bearing; **stigmatiform'is** (*forma*, shape), shaped like a stigma, or having the appearance of one; **stigmatoi'deus** (*εἶδος*, resemblance), = stigmatiformis; **Stigmatoph'orus** ‡ (*φορέω*, I carry), that part of the style of Compositae which bears the stigmas; **stig'matose**, *stigmato'sus*, provided with stigmas, or having them conspicuous; **Stigmataste'mon** ‡ (*στήμων*, a filament), a body formed by the union of anthers to the stigma (De Candolle); **Stig'mula**, a division of a stigma, when present.

**still**, dormant; ~ **Spore**, a resting spore.

**Stilogonid'ia** = STYLOGONIDIA.

**Stilt-roots**, the oblique adventitious roots of the Mangrove and similar forms (Kerner).

**Stim'uli**, pl. of **Stim'ulus** (Lat., a goad), = STING; **stim'ulous** (Lat.), stinging; **stim'ulose**, *stimulo'sus*, covered with stinging hairs; **Stim'ulus**, the particular active agent which produces definite changes in the organism, as moisture, light, etc.

**Sting**, a hollow hair seated on a gland which secretes an acrid lymph, as in nettles.

**Sting'ing-hair** = STING.

**sti'pate** (*stipatus*, surrounded), pressed together, crowded; **Stipa'tion**, an accumulation in the tissues or cavities.

**Stipe**, *Sti'pes* (Lat., a stock or trunk), a support such as (1) the stalk which bears the pileus of Agarics; (2) the "leafstalk" of a Fern; (3) the support of a gynaecium or carpel.

**Stipel'la**, **Stipel'lum** (dim. of STIPULA), a minute stipule on a partial petiole of compound leaves; **stip'ellate**, *stipella'tus*, furnished with Stipellae.

**Stipel'lus** (dim. of STIPES), a synonym of the FILAMENT of an anther.

**stipif'erous** ‡ (*stipes*, a stock, *fero*, I bear), bearing small flower-stalks, as the receptacle of some Composites; **sti'piform**, *stipiform'is* (*forma*, shape), having the appearance of the trunk of an endogenous tree, as the Papaw; **stip'itate**, *stipita'tus*, having a stipe or special stalk; **stip'itiform**, *stipitiform'is* = STIPIFORM.

**stip'ticus** = STYPTICUS, astringent.

**stipula'ceous**, *-ceus* (STIPULA + *aceus*), (1) belonging to a stipule; (2) with large stipules; **stip'ular**, having stipules, or relating to them; **stip'ulary**, (1) occupying the place of stipules, as some tendrils; (2) formed of stipules (Crozier).

**stip'ulate**, *stipula'tus*, *stipular'is*, (1) having stipules, or conspicuously provided with them; (2) with scales which are degenerate stipules; **stip'ulaeform**, **stip'uliform** (*forma*, shape), shaped as though a stipule; **Stipula'tion**, *Stipula'tio*, the arrangement of the stipules; **Stip'ule**, *Stip'ula* (Lat., stubble), an appendage of a leaf on each side of the leaf-insertion of those plants which possess them; **stipulea'nus**, resulting from the transformation of a stipule; **stipulif'erous**, *-rus* (*fero*, I bear), bearing stipules; **Stip'ulode**, a stipular

organ of one cell, in one or more rows subtending the branchlets in *Chara*; **stip'ulose**, *stipulo'sus*, having very large stipules.

**stirpa'lis** ‡ (*stirps*, a trunk, a plant), growing upon a stem; **Stirps**, pl. **Stir'pes**, (1) a race or permanent variety, as the Red Cabbage; (2) formerly equivalent to species.

**Stock**, (1) a synonym of RACE; (2) the stem which receives the scion in grafting; (3) a caudex or rhizome which emits roots.

**Stole**, **Sto'lon**, *Stol'o* (Lat., a shoot), a sucker, runner, or any basal branch which is disposed to root; **stolonif'erous** *-rus* (*fero*, I bear), sending out or propagating itself by stolons; **stolon'iform** (*forma*, shape) **Stem**, "a slender creeping stem with minute leaves" (Dixon and Jameson).

**Stom'a**, pl. **Stom'ata** (*στομα*, a mouth) or **Sto'mate**, (1) a breathing pore or aperture in the epidermis, surrounded by two guard-cells, leading into an intercellular space communicating with internal tissue; according to Tschirch of four types; **angiosper'mal** ~, **archego'nial**, ~ **eiso'dial** ~, and **opisthe'lial** ~; (2) the ostiole of certain Fungi, *cf.* EPIPHRAGMA; **sto'matal**, **stomat'ic**, pertaining to stomata; **stomat'ic Cells** = GUARD-CELLS; **stomatif'erous**, *-rus* (*fero*, I bear), bearing stomata; **Stomat'ium** = STOMA; **stom'atose**, in Mosses, possessing stomata; **Stom'ium**, an opening on the side of Fern-sporangia, between the lip-cells, through which dehiscence takes place.

**Stone**, the hard endocarp of a drupe; ~ **Cells**, the individual cells which have become hardened by secondary deposit, the components of sclerogen; ~ **Fruit**, a drupe such as a plum or peach.

**Stool**, (1) a plant from which offsets or layers are taken; (2) when several stems rise from the same root, as in wheat.

**Stop'per**, a word applied by Archer to the callus-plates in Algae; ~ **of Pol'len**, hyaline protoplasmic deposits in pollen-tubes (Degaguy).

**Stop'ples**, the projections or lids in pollen-grains which fall away to admit of the passage of the pollen-tube.

**strag'gling**, divaricate.

**Stor'ax**, = STYRAX.

**Stra'gulum** ‡ (Lat., a covering), the paleae of grasses.

**straight**, in a right line, not curved; ~ **ribbed**, ~ **veined**, when the ribs run in a straight line, as in the leaves of many Monocotyledons.

**Strain**, (1) in atavism, the influence of some ancestor; (2) a slight variety of race.

**Stra'men** (Lat.), straw; **straminel'lus** (N.Lat.), somewhat straw-coloured; **stramin'eous**, *-neus*, straw-like or straw-coloured.

**Strand**, a bundle of vascular tissue, resembling a cord; ~ **Myce'lium** = mycelial strand.

**Strand-plants**, used by C. Macmillan for shore plants.

**stran'gulated** (*strangulatus*, choked), contracted and expanded in an irregular manner.

**Strap**, the ligule of a ray floret in Compositae (Crozier); ~ **shaped**, ligulate or lorate.

**Stra'ta**, pl. (*stratum*, a layer), layers of tissue; **Stratifica'tion** (*facio*, I make), the successive deposition of layers on the cell-wall, and the arrangement of the said layers; **strat'ified**, disposed in layers; ~ **Thal'lus**, a Lichen thallus in which the gonidial layer or layers are evident; **stra'tose**, in distinct layers (Crozier); **Stra'tum**, a layer of tissue; ~ **cellulo'sum**, the bark layer next within the epidermis; ~ **cortica'le**, any bast layer; ~ **gonidia'le**, ~ **gon'imon**, the algal layer in Lichens; ~ **lig'neum**, a layer of wood; ~ **medulla're**, the medulla or pith; ~ **sporidiif'erum**, the flesh of Agarics; ~ **sporoph'orum**, the hymenium of Fungi.

**Straw**, the jointed hollow culm of grasses.



Stipel. = stipule like organs at the base of the leaflet of a compound leaf.

**Stream'ing**, the flow of protoplasm, as in Myxogastres.

**streptocar'pus** (*στεπτὸς*, twisted, *καρπὸς*, fruit), when fruit is marked by spiral stripes.

**Stri'ae**, pl. (*stria*, a furrow), markings on the valves of Diatoms which present the appearance of lines; **stri'ate**, *stria'tus*, marked with fine longitudinal parallel lines, as grooves or ridges; **Stria'tion**, of cell-wall, markings believed to be due to the manner of formation in bands by the protoplasm.

**strict**, *stric'tus* (Lat., drawn together), close or narrow and upright, very straight.

**Strig'a** (Lat., a swathe), "a small straight hair-like scale" (Henslow).

**strig'illose** (*strigilis*, a currycomb), = STRIGOSE (Henslow); **stri'gose**, *strigo'sus* (Lat., lank, meagre), beset with sharp-pointed appressed straight and stiff hairs or bristles; hispid.

**Stri'olae**, pl. (*stria*, a groove), lines of minute pustules on the outer surface of cells of *Sphagnum* (Spruce); **stri'olate**, finely striate.

**strike**, to emit roots, as from a cutting.

**String**, any fibre or strand (Crozier).

**striped**, marked with longitudinal stripes of colour.

**Strob'il** = STROBILE; **strobila'ceous**, *-ceus* (*στρόβιλος*, a cone, + *aceus*), relating to or resembling a cone; **Strob'ile**, *Strob'ilus* (*στρόβιλος*, a fir-cone), (1) an inflorescence largely made up of imbricated scales, as the Hop or Fir-cone; (2) *cf.* STROBILOID; **strobilif'erous**, *-rus* (*fero*, I bear), cone-bearing; **strobili'nus**, cone-like; **strobil'iform**, *strobiliform'is* (*forma*, shape), cone-shaped; **strob'iloid** (*εἶδος*, resemblance), cone-like; ~ **The'ory**, the assumed origin of Pteridophytes, in those forms whose sporophytes are the most primitive, as *Lycopodium* and *Equisetum* (Bower).

**Stro'ma** (*στρῶμα*, a mattress), a cushion-like body, on or in which the perithecia are immersed, a compound fungus-body; **stro'matoid** (*εἶδος*, resemblance), having the nature or seeming of a stroma; **stro'matous**, producing stroma (Crozier).

**strombulif'erous**, *-rus* (*strombus*, a spiral shell, *fero*, I bear), **strom-b'uliform**, *strombuliform'is* (*forma*, shape), when the fruit is spirally twisted; **Strom'bus**, a spirally coiled legume, as in *Medicago*; **strom'bus-shaped**, like a snail-shell.

**Strophan'thine**, a poisonous alkaloid from *Strophanthus hispidus*, DC.

**Stroph'es**, pl. (*στροφὴ*, a turning), any spirals shown in phyllotaxy.

**Stroph'iole**, **Stroph'iola** (*strophiolum*, a small chaplet), an appendage to the hilum of some seeds, caruncle; **stroph'iolate**, possessing such appendages.

**Stroph'ism** (*στροφὴ*, a turning), a tendency to twist in response to some external stimulus (Czapek); **Strophogen'esis** (*γένεσις*, beginning), differentiation of a single original generation into the phases regarded as alternation of generations (Strasburger); **Strophoma'nia** (*μάνια*, madness), special torsion, as in the stems of certain monstrosities.

**Struc'ture**, *Structu'ra* (Lat., fitting together), the peculiar organization of plants, with special modifications; adj. **struc'tural**; ~ **Bot'any**, includes Organography, Morphology, Anatomy, and Histology of plants.

**Stru'ma** (Lat., a scrofulous tumour), a wen or cushion-like swelling on an organ; **strumif'erous** (*fero*, I bear), having a strumous or goitre-like swelling; **stru'miform**, *strumiform'is* (*forma*, shape), with the appearance of a wen; **stru'mulose**, *strumulo'sus*, somewhat strumous, or having a small struma; **stru'mose**, *strumo'sus*, **stru'mous**, as though scrofulous.

**Strych'nia**, **Strych'nin**, a powerfully poisonous alkaloid from *Strychnos Nux-vomica*, Linn.

**Stud'y-set**, the principal set of a collector's plants, enriched by notes.

**stuffed**, solid, farctate (Crozier).

**Stu'pa** or **Stup'pa** (Lat., the coarse part of flax), a tuft or mass of hair or filaments matted together; **stu'peous**, *stu'peus* or *stup'peus*, woolly; **stu'pose**, *stupo'sus*, tow-like, with tufts of long hairs.

**styg'ius** (*Styx*, *Stygis*, an infernal river), used of plants which grow in foul waters.

**sty'lar** (*stylus*, from στῦλος, a column), relating to the Style, as ~ **Brush**, the collecting hairs of flowers, *cf.* COLLECTORS; ~ **Canal**, the tube or loose tissue through which the pollen-tubes pass; ~ **Col'umn**, the column of Orchids; ~ **Foot** = STYLOPODIUM; **styla'tus** (Lat.) = STYLOSUS; **Style**, *Sty'lus*, (1) the usually attenuated part of a pistil or carpel between the ovary and the stigma; ~ of Hepaticae, = INTERLOBULE; ~ of Mosses, (1) an old term for the neck of the archegonium; (2) the ostiole of certain Fungi (Lindley); **Style-ta'ble**, used by Haworth for the flattened apex of the style in Asclepiads; **sty'liform**, *styliform'is* (*forma*, shape), style-shaped, drawn out; **stylif'erous** (*fero*, I bear), bearing a style; **styli'nus** (Lat.), belonging to the style; **Stylis'cus** = STYLAR CANAL; **stylo'deus** (Lat.), furnished with a style; **Stylogonid'ium** (+ GONIDIUM), a gonidium formed by abstriction from special hyphae in such Fungi as Aecidiomycetes and Basidiomycetes, that is, uredo-, teleuto-, and basidio-spores; **Sty'lopod**, *Stylopod'ium* (πούς, ποδός, a foot), the enlargement at the base of the styles in Umbelliferae; **sty'lose**, *stylo'sus*, having styles of a remarkable length or persistence; **Sty'lospore** (σπορά, a seed), a spore borne on a filament; adj. **stylospo'rous**; **Stylosteg'ium** (στέγη, a roof), a peculiar hood surrounding the style, as in Asclepiads; **Styloste'mon** ‡ (στήμων, a filament), an epigynous stamen; **styloste'mus**, hermaphrodite; **Styloteg'ium** (τέγος, a covering) = STYLOSTEGIUM.

**styp'ticus** (Lat., from στυπτικός), astringent; usually implies use to stanch a wound.

**Sty'rax**, or **Stor'ax**, (1) a solid resin from *Styrax officinale*, Linn.; (2) at the present day a similar balsamic resin from *Liquidambar styraciflua*, Linn.

**styrido'phytus** (σταυρός, a cross, φυτόν, a plant), with cruciform petals (Henslow).

**suav'eolent**, *suav'eolens* (Lat.), sweet-smelling, fragrant.

**sub** (Lat.), under or below, in compounds usually implies an approach to the condition designated, somewhat, or slightly; **subacau'lis** (+ ACAULIS), with the stem hardly apparent; **sub'acute** (+ ACUTE), somewhat acute; **subaër'ial** (*aërius*, airy), situated almost on the ground level, as a rhizome which is covered with leaves, etc., but above the soil; **subapicula'ris** (+ APICULARIS), when the stem is prolonged beyond an inflorescence without branch or leaf; **subapic'ulate**, with an ill-defined point; **subarbores'cent** (+ ARBORESCENT), with a tendency to become somewhat tree-like; **subarchespor'ial** (+ ARCHESPORIAL) **Pad**, Bower's term for a cushion-like group of cells below the archesporium in *Lycopodium*; **subax'ile** (+ AXILE), nearly axile; **subaxil'lary**, below the axil; **subbiator'ine** (+ BIATORINE), somewhat as in the Lichen genus *Biatora*; **subbilocula'ris** (+ BILOCULARIS), with partitions which do not quite join, but leave a small interval; **subbys'soid** (+ BYSSOID), somewhat cobwebby; **subbif'ido-rum'pens** ‡ (+ BIFIDUS), "bursting into somewhat two divisions" (Lindley); **subcaules'cent** (+ CAULESCENT), with a very short stem, a trifle more developed than acaulescent; **subces'pitose** (+ CAESPITOSE), some-

what tufted (Crozier); **Sub'class** (+ CLASS), a group of Orders or Cohorts next in rank to a Class, or intermediate between Class and Cohort; **subconcat'enate** (+ CONCATENATE), growing in imperfect chains or connections; **subcon'ical** (+ CONICAL), slightly conical; **subcontin'uous** (*continuus*, unbroken), rarely or imperfectly septate (Crozier); **subcon'volute**, *subconvolu'tus* (+ CONVOLUTE), partially convolute; **subcor'date** (+ CORDATE); **subcordifor'mis** (+ CORDIFORM), somewhat heart-shaped; **subcre'nate** (+ CRENATE), obscurely crenate; **subcul'trate** (+ CULTRATE), slightly cultrate; **subden'tate** (+ DENTATE), imperfectly dentate; **subdentic'ulate** (+ DENTICULATE), with small or imperfect marginal teeth; **subdifform'is** (+ DIFFORMIS), having some amount of irregularity; **sub'effuse** (+ EFFUSE), slightly spreading; **sub'entire** (+ ENTIRE), having very slight marginal incisions; **subepiderm'al** (+ EPIDERMAL), below the epidermis; ~ **Tis'sue**, = HYPODERMA.

**Su'ber** (Lat., the cork-oak), cork or phellogen; **suber'eous**, = suberose; **Suberifica'tion** (*facio*, I make), or **Suberiza'tion**, conversion into cork, cutinization; **su'berized**, converted into cork; ~ **Mem'brane**, with cell-walls turned into cork; **Su'berin**, the substance of cork, nearly the same as cutin; **su'berose**, *subero'sus*, **su'berous**, corky in texture.

**sub'erect**, *suberect'us* (*sub*, somewhat, + ERECT), nearly erect, but nodding at the top (Babington); **suberose'** (+ EROSE), slightly gnawed in appearance.

**Sub'ex** (Lat., support, underlayer), that part of the axis which bears cataphyllary leaves (Kerner).

**Subfam'ily** (*sub*, below), a Suborder or group of genera within an Order; **subflex'uose** (+ FLEXUOSE), somewhat wavy; **subgenic'ulate** (+ GENICULATE), slightly bent or kneed; **Subgen'us** (+ GENUS), a group, ranking as a section, or possibly a true genus held doubtful; **subglobose'** (+ GLOBOSE), nearly globular; **subgluma'ceous** (+ GLUMACEOUS), somewhat glumaceous; **subhyme'nial** (+ HYMENIAL), below the hymenium; ~ **Lay'er** or **Subhyme'nium**, = HYPOTHECIUM.

**Subic'ulum** (Lat., an underlayer), a felted or byssoid stratum of hyphae, bearing perithecia.

**subim'bricate**, *subimbrica'tus* (*sub*, somewhat, + IMBRICATE), somewhat overlapping; **subinsip'idus** (*insipidus*, tasteless), almost devoid of flavour; **subja'cent** (*jacens*, lying), lying just below (Dixon & Jameson); **Subking'dom**, the main division of a kingdom, a primary botanic division, as Phanerogams and Cryptogams.

**subla'tus** (Lat., lifted up), when the ovary has a support, real or apparent.

**sublentic'ular** (*sub*, somewhat, + LENTICULAR), more or less doubly convex; **sublit'toral** (+ LITTORAL), employed by H. C. Watson for those plants which have a tendency to grow near the sea, but not actually shore-plants; **submar'ginal** (+ MARGINAL), near the margin.

**submerged'**, **submersed'**, *submer'sus* (Lat., dipped or plunged under), growing under water; **submersib'ilis**, capable of existing when submersed.

**subnas'cent** (*subnascor*, I grow up under), growing or arising from below some object.

**subni'ger** (*sub*, somewhat, + NIGER), = NIGRICANS; **sub'nude** (*nudus*, naked), nearly destitute of covering, as leaves or hairs; **sub'obtuse** (+ OBTUSE), slightly obtuse or blunt; **suborbic'ular** (+ ORBICULAR), nearly circular; **Subor'der**, *Subor'do*, a group of genera lower than an order; **subo'vate** (+ OVATE), somewhat ovate; **subpedunc'ulate** (+

PEDUNCULATE), supported on a very short stem; **subpet'iolar**, *subpetiola'ris*, **subpet'iolate** (+ PETIOLATE), under the petioles, as the buds of *Platanus*; **subperiphaer'icus** (+ PERIPHERIC), nearly peripheric, used of an embryo, such as in *Atriplex* (S. F. Gray); **subramea'lis** (+ RAMEAL), growing on a branch below a leaf; **subra'mose**, *subramo'sus*, **subra'mous** (+ RAMOSE), (1) having a slight tendency to branch; (2) with few branches; **subrig'id** (+ RIGID), slightly rigid; **subro'seus** (+ ROSEUS), somewhat rose-coloured, pinkish; **subrotund'** (+ ROTUND), roundish; **subscyph'iform** (+ SCYPHIFORM), somewhat boat-shaped; **Subsec'tion** (+ SECTION), the division of a genus below a section, a small section; **subser'rate**, *subserra'tus* (+ SERRATE), vaguely serrate; **subses'sile** (+ SESSILE), nearly sessile, almost devoid of a stalk; **Sub'shrub**, an under-shrub, or small shrub which may have partially herbaceous stems.

**Subsid'iary** (*subsidiarius*, serving for support) **Cells**, certain epidermal cells which are less thickened or situated lower than the guard-cells which they surround (Strasburger).

**subsim'ple** (*sub*, somewhat, + SIMPLE), with few divisions; **Subspe'cies**, a group of forms ambiguous in rank, between a variety and a species, usually marked by an asterisk,*; **Subspor'al** (*σπορά*, a seed) **Cells**, applied to certain colourless cells in *Pithophora*, found in spore-bearing individuals (Wittrock).

**Sub'stitute** (*substitutus*, put in place of) **Fi'bres**, like libriform fibres, but a much reduced form of prosenchyma, the "Ersatzfasern" of Sanio.

**Substomat'ic** (*sub*, below, + STOMATIC) **Cham'ber**, = STOMATIC CHAMBER.

**substra'tose** (*sub*, somewhat, + STRATOSE), somewhat stratified, or in layers.

**subtend'** (*subtendo*, I stretch underneath), to extend under, or be opposite to; **subten'ding Leaf**, that leaf whose axil gives rise to a bud or peduncle.

**subterete'** (*sub*, somewhat, + TERETE), somewhat terete; **subtrop'ic** (+ TROPIC), applied to half-hardy plants which in temperate climates can thrive in summer only.

**subterra'neous**, *subterra'neus* (Lat.), underground.

**Sub'tribe** (*sub*, under, + TRIBE), a division between a tribe and a genus.

**Su'bula** (Lat., a small weapon), a fine sharp point; **Su'bule**, Duval-Jouve's term for the terminal, non-twisted portion of the awn of grasses; **su'bulate**, *subula'tus*, awl-shaped; **Su'buli**, pl., "the aciculae or sharp processes formed by some Fungals" (Lindley); **su'bulifer**, **subulif'erous** (*fero*, I bear), bearing sharp points; **su'buliform**, *subuliform'is* (*forma*, shape), awl-shaped.

**subum'bellate** (*sub*, somewhat, + UMBELLATE), somewhat umbellate, as the inflorescence of some Rosaceae.

**Subvari'ety**, *Subvari'etas* (*sub*, under, + VARIETY), a trifling variety or form.

**subven'tricose** (*sub*, somewhat, + VENTRICOSE), somewhat inflated; **subvertic'illate** (+ VERTICILLATE), in imperfect or irregular whorls.

**Succeda'neum** (*succedaneus*, substituted), a substitute.

**Succes'sive** (*successivus*, following) **Whorl**, one whose members did not originate simultaneously, but in succession.

**succif'erous** (*succus*, sap, *fero*, I bear), producing or conveying sap.

**succinc'tus** (Lat., ready) = CIRCINATUS.

**succin'eus** or *sucin'eus* (Lat., of amber), amber-coloured; **Suc'cinite**, the commonest and best known form of amber, resin exuded by *Pinus succinifera*, Goepp., ‡; **Succino'sis**, Conwentz's term for an

abnormal occurrence of resin in fossil amber-trees.

**succise'**, *succi'sus* (Lat., cut off), as if abruptly cut or broken off at the lower end.

**suc'cose**, *succo'sus* (Lat., juicy), succulent, sappy.

**suc'cubous**, *-bus* (Lat., lying under), the oblique insertion of distichous leaves of Hepaticae, so that the upper overlaps the lower on the dorsal side of the stem, as in *Plagiochila*.

**suc'culent**, *succulen'tus* (Lat., sappy), juicy.

**Suc'cus** (Lat., sap), any juice which can be expressed from a plant.

**Suc'ker**, (1) a shoot of subterranean origin; (2) an haustorium, sometimes restricted to the penetrating organ or papilla.

**Su'crase** (Fr., Sucre, sugar, + ase), = INVERTASE; **Su'crose** (+ ose), a group of sugars, such as cane-sugar and maltose.

**suffrutes'cent**, *suffrutes'cens* (*sub*, somewhat, *frutex*, a shrub), obscurely shrubby; **Suffru'tex**, an undershrub; **suffru'ticose**, *suffrutico'sus*, **suffrutic'ulose**, somewhat shrubby.

**sufful'tus**, (1) supported or propped; (2) **Sufful'tus**, a plate or disc forming the basis of a bulb; when much lengthened gives rise to the term *Bulbus suffultus* (Endlicher).

**Su'gar**, a group of sweet, crystalline substances and soluble in water (sucroses and glucoses); **Beet** ~ extracted from specially selected strains of *Beta vulgaris*, Linn.; **Cane** ~, or saccharose, from *Saccharum officinarum*, Linn.; **Fruit** ~ = LAEVULOSE; **Grape** ~ = GLUCOSE or DEXTROSE; **Inver'ted** ~, occurs in some ripe fruits and honeydew; **Ma'ple** ~, from *Acer saccharinum*, Wangenh.; **Palm** ~ from species of *Arenga*, etc.

**sul'cate**, *sulca'tus* (Lat., furrowed), grooved or furrowed.

**Sul'ci**, pl. of **Sul'cus**, (1) small grooves or FOSSULAE in some Diatom valves; (2) lamellae of certain Fungi (Lindley); **sul'ciform** (*forma*, shape) = SULCATE.

**sulfu'reous**, etc., see SULPHUREOUS, etc.

**Sulphobacter'ia** (*sulphur*, brimstone + BACTERIA), those microbes which reduce sulphur out of its solutions; **sul'phur-col'oured**, = SULPHUREUS; ~**Rain**, pollen from pines brought by currents of air; **Sulphurar'ia**, Planchard's name for Algae which reduce sulphates from waters containing those salts; **sulphurel'lus**, slightly sulphur-coloured; **sulphu'reous**, *-reus*, the colour of brimstone, a very pale yellow; **sulphures'cens**, becoming sulphur-coloured; **sulphuri'nus**, sulphury in tint.

**Sum'mer-spore**, any spore which germinates quickly, and retains its vitality a short time only, as conidia and uredospores, in contrast to winter- or resting-spores.

**Sum'mit**, used by Grew and his successors for ANTHER.

**Sun-plants**, plants which prefer full sun-light; their stems are often short, the leaves have the palisade cells well developed (Willis).

**sup'er** (Lat.), above; often modified into *supra-*; **superagrar'ian** (+ AGRARIAN), a name applied to a zone which includes the region of vegetation in Great Britain above the limits of cultivation; **superarc'tic**, those plants which are confined to the highest zone in Great Britain, the most alpine of the flora in our islands; **superaxil'lary**, *superaxilla'ris* (+ AXILLARY), growing above an axil; **supercompos'itus** = SUPRACOMPOSITUS; **Supercres'cence** (*cresco*, I grow), a parasite (Crozier); **supercres'cent**, growing above or on another body; **superdecom'pound** = SUPRADECOMPOUND; **Superfecunda'tion** (+ FECUNDATION), the union of more than two gametes.

**Superfic'ies** (Lat., the surface), **Cor'poris**, ~ **Placenta'ris**, "the

hymenium of certain Fungals" (Lindley).

**superficiar'ius** (Lat., on another's land), on the surface of an organ.

**Super'flua**, pl. of **Super'fluum** (*superfluus*, overflowing), a Linnean order of Syngenesia (Compositae) containing plants with the florets of the disk hermaphrodite, and those of the ray female.

**Superfoeta'tion** (*super*, above, + Foetation), the fertilization of an ovary by more than one kind of pollen; **superfolia'ceous** = SUPRAFOLIACEOUS; **superfo'lius** = SUPRAFOLIUS.

**super'ior** (Lat., higher), (1) growing or placed above; (2) also in a lateral flower on the side next the axis: the posterior or upper lip of a corolla is the superior; ~ **O'vary**, when all the floral envelopes are inserted below it, on the torus; *cf.* HALF-SUPERIOR.

**superna'tant** (*supernatans*, swimming above), floating on the surface.

**supernu'merary** (*supernumerarius*, over and above), additional; ~ **Buds**, are either ADVENTITIOUS ~, or POSTVENTITIOUS ~.

**Superpar'asite** (*super*, above, + PARASITE), a parasite of a parasite; **Su'per-plant**, a plant which grows upon another, either as an epiphyte or parasite.

**superpo'sed**, *superpos'itus* (Lat., placed over), vertically over some other part; **Superposit'ion**, placed vertically, or in parts of the flower, opposite.

**Supertubera'tion** (*super*, above, + TUBER), the production of secondary tubers upon the normal primary tubers; **Superspe'cies** (+ SPECIES), a group of sub-species or new species regarded as an entity.

**supervac'uus** (Lat.), redundant.

**supervolute'**, *supervolu'tus*, rolled over, when applied to plants, the same as CONVOLUTE; **supervolu'tive**, *supervoluti'vus*, convolute aestivation.

**supine'**, *supi'nus* (Lat., lying on the back), prostrate, with face turned upward.

**Suppor'ting** (*supporto*, I carry or bring up) **Plant**, a plant upon or in which another grows; a host plant (Crozier).

**Suppres'sion** (*suppressio*, a keeping back), complete abortion.

**supra** = above, in compounds from Latin; **supra-axil'lary** (+ AXILLARY), growing above an axil; **supracom'posite**, *supracompos'itus*, *supradecompos'itus* (*compositus*, composed), excessively subdivided; **suprafolia'ceous**, *-ceus* (+ FOLIACEOUS), inserted above the petiole, growing above a leaf; **suprafo'lius** (*folium*, a leaf), growing on a leaf; **supraterra'neous**, used by Spruce as the opposite of subterraneous, as ~ **Perianth**; *cf.* Spruce, Cephalozia, p. 92.

**supreme'** (*supremus*, highest), as the top or highest point.

**surculig'erous**, *-rus* (*surculus*, a young branch, *gero*, I bear), bearing suckers; **sur'culose**, *surculo'sus*, producing suckers; **Sur'culus**, (1) a sucker, a shoot rising from an underground base, as from the root; (2) the leafy stem of Bryophytes and Lycopods (Bischoff); **Sur'culum** is used by J. Smith for the rhizome of a Fern.

**surcur'rent** (Fr., sur = upon, + current = running), having winged expansions from the base of the leaf prolonged up the stem.

**Sur'face-yeast**, the same as HIGH-YEAST.

**Sur'foyl**, Grew's word for outer scales.

**sur'sum** (Lat., upwards), directed upward and forward; ~ **hamulo'sus**, bordered with hooks pointing to the apex.

**suspend'ed**, *suspen'sus* (Lat., hung up), hanging directly downward, or from the apex of a cell; **Suspen'sor** (1) of the embryo, a thread of cells at the extremity of a developed embryo; (2) the cell which supports the conjugating cell in Mucorini.

**su'tural**, *sutura'lis* (*sutura*, a seam),

relating to a suture; **Su'ture**, (1) a junction or seam of union; (2) a line of opening or dehiscence; **sutura'rius**, possessing a suture.

**Swarm**, a number of spores or unicellular Algae of similar origin, which remain in company without being united; *cf.* ADELPHOTAXY; ~ **Cell**, ~ **Spore**, a motile naked protoplasmic body, a zoospore; **Swarm'ers**, zoospores; **swarm'ing**, moving by means of cilia, applied to zoospores.

**swim'ming**, used vaguely for aquatics which float or have floating leaves; also restricted to those wholly immersed and free; ~ **Appara'tus**, in *Azolla*, three apical episporic spongy masses of tissue, surrounding a central conical body with an array of fine filaments (Campbell).

**Switch-plants**, plants whose leaves are wanting or reduced, with green shoots acting in place of leaves.

**sword-shaped**, ensiform.

**sychnocar'pous**, *-pus* (*συχνός*, frequent, *καρπός*, fruit), able to produce fruit many times without perishing, as trees and herbaceous perennials.

**Sy'con** = **Sycon'ium**, or **Sy'conus** (*σῦκον*, fruit of the fig-tree), a multiple hollow fruit, as that of the fig.

**Syco'sis** (*σύκωσις*), a skin disease ascribed to species of *Microsporon*.

**Sygolli'phytum**, error (?) for **Syncolliph'ytum** (*σύγκολλος*, glued together, *φυτόν*, a plant), a plant in which the perianth becomes combined with the pericarp.

**Syl'va**, or **Sil'va** (Lat., a wood), applied to an account of the trees of a district, or a discourse on trees; **syl'van**, relating to woods; **sylvat'icus** or *silvat'icus*, growing amongst trees; **sylves'tral**, used by H. C. Watson for plants which grow in woods and shady places; **sylves'tris** or *silves'tris*, growing in woods; **sylves'trine** (Crozier), growing in woods; **Syl'vula**, (1) a plantation; (2) a small SYLVA.

**sym**, a modification of *syn* (*σύν*), with; **Sym'bion** (*βίος*, life), an organ which lives in a state of SYMBIOSIS; **Sym'biont** (**Symbio'tes**, of Tubeuf), an individual existing in **Symbio'sis**, the living together of dissimilar organisms, with benefit to one only, or to both; also styled commensalism, consortism, individualism, mutualism, nutricism, prototrophy and syntrophism; **antagonis'tic** ~ is a struggle between the two organisms; **conjunc'tive** ~ where the symbionts are intimately blended so as to form an apparently single body; **contin'gent** ~, when one plant lives in the interior of another for shelter, not parasitism, in Germ. Raumparasitismus; **disjunc'tive** ~ when the association is only temporary (Frank); **mutualis'tic** ~ when of reciprocal advantage; **symbio'tic**, relating to symbiosis; ~ **Sap'rophytism**, the condition of a higher plant as a Phanerogam, in symbiosis with a Fungus (Macdougal).

**symmetran'thus** (*συμμετρία*, proportion, *ἄνθος*, a flower), when a perianth is divisible into equal parts by several planes of division; **symmet'ric**, **symmet'rical**, (1) actinomorphic; (2) similar in the number of members in calyx, corolla, and androecium; **symmetricar'pus** (*καρπός*, fruit), a fruit which is symmetric, as first defined; **Sym'metry**, *Symmet'ria*, capable of division into similar halves.

**Sym'pathy** (*συμπάθεια*, fellow-feeling), (1) the faculty of ready union in grafting; (2) readiness to hybridize, or receive foreign pollen; adj. **sympathet'ic**.

**Sym'pedae**, pl. (*σύν*, with, *πέδη*, a fetter), applied by O. Mueller to those Diatoms having superficial symmetry; **Sympet'alae**, (*πέταλον*, a flower leaf) = GAMOPETALAE; **sympetal'icus**, ‡ the cohesion of the stamens to the petals, as in *Malva*; **sympet'alous**, *-lus*, with united petals, gamopetalous.

**symphian'therous**, *-rus* (*συμφύω*, I cause to grow together, *ἄνθηρος*, flowery),

a synonym of Synantherus and Syngenesius (Henslow); **symphicar'pous** (*καρπὸς*, fruit), with confluent fruits; **symphiogenet'ic** (*γένος*, a race), formed by union of previously separate elements; **symphyan'therous** ‡ = symphiantherous; **Symphyllo'dium** (*φύλλον*, a leaf), the combined ovuliferous scales in the flower of certain Coniferae (Warming); **symphyl'lous**, gamophyllous; **symphyogenet'ic** = symphiogenetic; **symphyoste'monous** (*στήμων*, a stamen), having the stamens united.

**Sym'physis** (*σύμφυσις*, growing together), (1) coalescence; (2) fusion of parts (Bessey); **Symphys'ia** is a synonym.

**symphyste'monous** = symphyostemonous.

**symphytan'therus** = symphiantherus.

**symphytog'ynus** (*σύμφυτος*, innate, *γυνὴ*, a woman), the calyx and pistil more or less adherent, the ovary being inferior; **symphyt'ic**, formed by fusion of several nuclei, as a gameto-nucleus (oogamete) of Peronosporeae or (isogamete) of *Dasycladus* (Hartog); **symphytothe'lus** (*θηλὴ*, a nipple) = SYMPHYTOGYNUS.

**Sym'plast** (*σὺν*, with, *πλαστὸς*, formed), an assemblage of energids, as in *Caulerpa prolifera*, Lamour.; **Symplo'cium**, or **Symplo'kium** (*πλέκω*, I plait), old names for the sporangium of a Fern; **Sym'pode**, *Sympod'ium* (*πούς, ποδὸς*, a foot), a stem made up of a series of superposed branches, so as to imitate a simple axis; adj. **sympod'ial**; ~ **Dichot'omy**, where at each forking, one branch continues to develop and the other aborts.

**syn** (*σὺν*, with), adhesion or growing together; *cf.* SYM; **synac'mic** (*ἀκμὴ*, a point = prime of life), adj. of **Synac'my**, the stamens and pistils mature together, being the opposite of HETERACMY; **Synan'drium** (*ἀνὴρ, ἀνδρὸς*, a man), the cohesion of the anthers of each male flower in certain Aroideae; **Synan'dry**, Morren's term where stamens normally separated are soldered or united; **Synan'gia**, pl. of **Synan'gium** (*ἀγγεῖον*, a vessel), an aggregated exannulate Fern sporangium forming a series of loculi, as in *Marattia* (J. Smith); adj. **synan'gial**; **synanthe'ricus** (*ἄνθηρος*, flowery), the growing together of anthers, as in Composites, syngenesious; **Synan'therae**, a name for Compositae; adj. **synan'therous**; **Synantherol'ogist** (*λόγος*, discourse), an expert in the study of Compositae; **Synanthe'rus**, a flower with coalesced anthers; **Synanthe'sis** (*ἄνθησις*, flowering), simultaneous anthesis, stamens and pistils ripe at the same time, synacmy; **Synantho'dy** (*εἶδος*, resemblance), the lateral adhesion of two flower-buds on the same stalk, or on two peduncles which have become fasciated; **Synan'thy** (*ἄνθος*, a flower), Morren's term for the adhesion of two or more flowers; adj. **synan'thic**, **synan'thous**; **Synanthrophy'tum** (*σὺν*, with, *ἀθρόος*, crowded, *φυτὸν*, a plant), a plant whose fruit is compounded of many carpels; the word as cited by Henslow, seems to be an error for Necker's group Synathrophytum; **Synan'throse**, a sugar found in the roots and tubercles of certain Compositae.

**Synap'sis** (*συνάπτω*, I join), the condensation of the nuclear filament to one side of the nucleus previous to heterotypic mitosis.

**Synap'tase** (*συναπτὸς*, joined), the same substance as EMULSIN.

**Synarmoph'ytus** (*συναρμοσὶς*, conjunction, *φυτὸν*, a plant), gynandrous.

**Syn'carp**, *Syncar'pium* (*σὺν*, with, *καρπὸς*, fruit), a multiple or fleshy aggregate fruit, as the mulberry, or *Magnolia*; **syncar'pous**, *-pus*, composed of two or more united carpels; **Syncar'py**, the accidental adhesion of several fruits; **syncotyle'donous**, *-neus* (+ COTYLEDON),

with coalesced cotyledons; **Syn'cyte**, *Syncyt'ium* (κυτὶς, a small box), a structure derived from the more or less complete absorption of the cell-walls, which places their lumina in direct contact.

**syned'ral**, **syned'rous**, *-drus* (σύνεδρος, of the same seat), growing on the angles.

**Syne'ma** (σὺν, with, νῆμα, a thread), (1) the column of monadelphous stamens, as in Malvaceae; (2) ‡ that part of the column of an Orchid which represents the filament of the stamens (Lindley); **Syner'gids**, *Syner'gidae* (συνεργὸς, an assistant), the two nuclei of the upper end of the embryo sac, which with the third (the oosphere) constitute the egg-apparatus.

**Syn'gamete** (σὺν, with, + GAMETE), C. Macmillan's expression for the cell which arises from the fusion of two gametes; *cf.* OOSPERM, ZYGOTE; **Syngenes'ia** (γένεσις, beginning), a Linnean class, with flowers having united anthers, Compositae; **syngenes'icus** = **syngenes'ious**, *syngenes'us*, (1) with anthers cohering in a ring; (2) belonging to the order Compositae; **Syn'grammae** (γράμμα, an outline), Diatoms with linear symmetry (O. Mueller); **Synchor'ion** ‡ (χόριον, foetal membrane), Mirbel's name for CARCERULE; **synoch'reate** (+ OCREA), having opposite united stipules which enclose the stem in a sheath; **synoe'cious** (οἶκος, a house), having antheridia and archegonia in one inflorescence; bryologists seem to prefer the form **synoi'cous**.

**Syn'onym** (συνώνυμος, having the same name), a superseded or unused name; **Synon'ymy**, all that relates to synonyms.

**Synoph'thy**, the corrected abbreviation of "Synophthal'my" (σὺν, with, ὀφθαλμὸς, an eye), see next; —Moquin-Tandon's term for adhesion of (1) embryos; (2) buds; **Synoph'ty** (deriv., see last); **Synoph'yty** (Crozier), = SYNOPHTHY.

**Synop'sis** (σύνοψις, a glance), a condensed description of a genus or other group of plants.

**synpet'alous** (σὺν, with, πέταλον, a flower leaf), = gamopetalous; **synrhi'zus** (ῥίζα, a root), having a radicle whose point is united to the albumen; **synsep'alous**, *-lus* (+ SEPALUM), gamosepalous, the sepals coalescent; **synsper'mous**, adj. of **Synsper'my** (σπέρμα, a seed), the union of several seeds; **synspor'ous** (σπορὰ, a seed), "propagating by conjugations of cells, as in Algae" (Stormonth); **synstigmat'icus** (στίγμα, a point), when a pollen-mass is furnished with a retinaculum by which it adheres to the stigma, as in Orchids.

**syntac'tic** (συντακτικὸς, putting together), used of irregularity which is zygomorphic (Pax).

**Syntag'ma**, pl. **Syntag'mata** (σὺν, with, τάγμα, an array), Pfeffer's term for bodies built up of TAGMATA, themselves aggregations of MOLECULES; **syntep'alous** (+ TEPALUM), the tepals united; **syntroph'icus** (τροφὴ, food), epiphytic; **Syntroph'ism** and **Syntroph'y**, the antagonistic symbiosis of Lichen with Lichen; **Syn'trophs**, "Lodgers" in Lichens; **Synzyg'ia** ‡ (ζυγὸς, a yoke), the point of contact of opposite cotyledons.

**Sy'phon**, = SIPHON.

**Syring'in**, a substance occurring in *Syringa*, the Lilac; **syringi'nus**, lilac-coloured, a light purple.

**Syringoden'dron**, used by palaeobotanists for old or partially decorticated sigillarian stems; the name was formerly generic.

**Systellophy'tum** (συστέλλω, I wrap closely, φυτὸν, a plant), when a persistent calyx appears to form part of the fruit.

**Sys'tem** (σύστημα, a composition), a scheme of classification; **systemat'ic**, *systemat'icus*, relating to system; ~ **Bot'any**, the study of plants in their mutual relationships and taxonomic arrangement.

**Syst'ole** (*συστολή*, a contraction), the contraction of the contractile vesicles in certain Algae, plasmodia, and zoospores.

**Syst'rophe** (*συστοφή*, rolling up), when strong light causes chlorophyll grains to congregate into a few masses (A. F. W. Schimper); adj. **systroph'ic**, as ~ **In'terval**, or **Systroph'ion**, that portion of the PHOTRUM in which systrophe can take place (S. Moore).

**systyl'ius** (*σὺν*, with, *στῦλος*, a column), the lid fixed to the columella in Mosses, and elevated above the capsule when it dries; **systy'lus**, when styles coalesce into one body, as in *Rosa systyla*, Bast.

**tabaci'nus**, pale brown, "tobacco-coloured;" the name is from *Nicotiana Tabacum*, Linn.

**Tabasheer'**, a siliceous concretion occurring in the joints of bamboo.

**Ta'bes** (Lat., a wasting away), a disease, the loss of the power of growth and consequent wasting away; **tabes'cent**, *tabes'cens*, wasting or shrivelling.

**Tab'let** (*tabula*, a board or plank), (1) the frustule of Diatoms when quadrangular; (2) the rectangular colony of *Gonium*; **Tab'ula**, the pileus of certain Fungi; **tab'ular**, *tabula'ris*, flattened horizontally; ~ **Roots**, buttress-like roots of certain tropical trees (Kerner).

**tabula'tus**, ‡ (Lat., boarded or floored), layer on layer.

**taenia'nus** ‡ (*taenia*, a band), long, cylindric and contracted in various places; **taeniop'teroid**, in fossil botany, resembling the genus *Taeniopteris*.

**Tag'ma**, pl. **Tag'mata** (*τάγμα*, an array), Pfeffer's term for all aggregations of molecules; **tagmat'ic Com'plex**, a higher molecular system.

**Tail**, any long and slender prolongation; ~ **point'ed**, excessively acuminate, caudate; **tailed**, said of anthers which have a prolongation from the loculus, which part is destitute of pollen-grains.

**Tala'ra** ‡ (*talaria*, the winged shoes of Mercury), the wing or ala of a papilionaceous corolla.

**Ta'lea** (Lat.), a cutting, a small branch for propagating.

**tall**, exceeding the normal height.

**tangen'tial** (*tangens*, touching), at right angles to the radial or medullary rays.

**Tan'ghin**, the poison occurring in the ordeal poison plant of Madagascar, *Cerbera Tanghin*, Hook.

**Tan'gle**, the same as SKEIN (Crozier).

**tan'kard-shaped**, thickened and gradually enlarged downward, then suddenly contracted or ended, as some varieties of turnip (Crozier).

**Tan'nin** or **Tan'nic Ac'id**, an important group of astringents, especially abundant in some barks, as that of the oak; **Tan'nin-sacs**, ~ **-ve'sicles**, strongly refractive globular bodies in cells, which contain tannin.

**Tap-root**, the primary descending root, forming a direct continuation from the radicle; **tap-root'ed**, possessed of a tap-root.

**ta'per**, cylindric but angular, and gradually diminishing towards the end; ~ **point'ed**, acuminate, as the leaf of *Salix alba*, Linn.; **ta'pering**, regularly diminishing in diameter.

**Tape'sium** (*τάπης*, a carpet), dense and wefted superficial mycelium, having ascophores seated on it; **tape'tal**, relating to the tapetum; ~ **Cell**, cell of a tapetum; ~ **Lay'er** = TAPETUM; **Tapete'**, a suggested emendation of **Tape'tum**, a membrane of granular cells investing the sporogenous cells in the archesporium, absorbed as the spores mature.

**Taphrench'yma** (*τάφρος*, a ditch, *ἔγχυμα*, an infusion), = BOTHRENCHYMA.

**Tapio'ca**, prepared starch of the roots of several species of *Manihot*.

**Tarax'acine**, a bitter crystalline principle found in dandelion, *Taraxacum officinale*, Weber.

**tartar'eous**, *-eus* (Mid. Lat., *tartrum*, wine tartar), having a rough crumbling surface, like some Lichens.

**taw'ny**, fulvous, a dull brownish-yellow.

**taxiform'is** (*taxus*, the yew, *forma*, shape), arranged distichously like the leaves of yew.

**taxinom'ic** = TAXONOMIC.

**Tax'is** (*τάξις*, order), used by Czapek to express reaction of free organisms in response to external stimuli by movement; **Taxit'ery** (*τέρας*, a monster), a modification which is so slight as to admit of comparison with the normal form; **Taxol'ogy** (*λόγος*, discourse) or **Taxon'omy** (*νόμος*, law), classification; **Taxono'mist**, one skilled in classification; adj. **taxonom'ic.**

**Tear**, a drop of gum or resin in its native state; **tear-shaped**, like the pip of an apple, lachrymiform.

**Teeth**, (1) any small marginal lobes; (2) in Mosses, the divisions of the peristome.

**Teg'men** (Lat., a covering), (1) the inner coat of a seed, previously the secundine of an ovule; (2) ‡ the glume of a grass; pl. **Tegmen'ta**, the scales of a leaf-bud; ~ *folia'cea*, *fulcra'cea*, *petiola'cea*, *stipula'cea*, modifications of leaves, stipules and petioles, petioles and stipules only (Lindley); **tegmina'tus** (Lat.), when the nucellus is invested by a covering.

**tegument'ary** (*tegumen*, a cover), relating to some covering; **Tegumen'tum**, (1) the indusium of a Fern; (2) the spermoderm.

**Te'la** (Lat., a web), elementary tissue, as meristem; ~ **contex'ta**, a weft of distinct hyphae, felted tissue; Ger. "Filzgewebe."

**teleian'thus** (*τέλειος*, perfect, *ἄνθος*, a flower), hermaphrodite.

**Teleol'ogy** (*τέλεος*, gen. of *τέλος*, completion, *λόγος*, discourse), the doctrine of final causes, or theory of tendency to an end; adj. **teleolog'ic.**

**Teleutoconid'ium** = **Teleutogonid'ium** (*τελευτή*, an end, + GONIDIUM), = TELEUTOSPORE; **Teleu'tospore** (*σπορά*, a seed), a resting bilocular spore of Uredineae on germination producing a promycelium.

**Telog'amae** (*τέλος*, an end, *γάμος*, marriage), Ardissone's term for Florideae; **Telogonid'ium** (+ GONIDIUM), a gonidium arising from successive generations in the same cell (A. Braun); **Tel'ophase** (*φάσις*, an appearance), the last phase of nuclear division.

**Tem'peratures**, the sum of, used to mark a given period in the life-cycle of a plant.

**temulen'tous** (*temulentus*, drunken), nodding in a jerky irregular manner, *cf.* NUTANS (Heinig).

**Tem'ulin**, an active principle occurring in *Lolium temulentum*, Linn.

**Tenac'ulum**, pl. **Tenac'ula** (Lat., a holder), haptera or holdfasts of Algae; adj. **tenac'ular.**

**Ten'dril**, a filiform production, cauline or foliar, by which a plant may secure itself in its position.

**Ten'sion** (*tensio*, a stretching), due to turgidity in cells, and manifested by movements of parts.

**Ten'tacle** (*tentaculum*, Mod. Lat., a feeler), a sensitive glandular hair, as those on the leaf of *Drosera*; **Tentac'uloid** (*εἶδος*, resemblance), applied to long processes which pass through mammiform protuberances of the perigloea of Diatoms (Buffham).

**tenuifo'lious** *-lius* (*folium*, a leaf), thin or fine-leaved; **Tenuinucel'la'tae** (*tenuis*, narrow, + NUCELLUS), Van Tieghem's term for those plants with true seeds, in which the nucellus is reduced to a layer of cells or wholly absorbed by the endosperm; **ten'uis** (Lat.), thin.

**Tep'al**, *Tep'alum* (anagram of *petalum*), a division of the perianth, sepal or petal; restricted by H. G. Reichenbach to the two unchanged petals of Orchids.

**teph'reus**, **teph'rus** (*τεφρός*, ashy),

ash-coloured; **tephro'sius**, ashy-grey.

**Tepida'rium** (Lat., a tepid bath-room), in botanic gardens a "Cape House."

**Teratog'eny** (*τέρας*, *τέρατος*, a sign or prodigy, *γένος*, offspring), the production of monsters; **Teratol'ogy** (*λόγος*, discourse), the study of malformations and monstrosities; adj. **teratolog'ic.**

**Ter'ebene**, a terpene which holds resin in solution, as turpentine; the name is from *Pistacia Terebinthus*, Linn.; **terebin'thine**, pertaining to, or consisting of, turpentine.

**Ter'cine**, *Terci'na* (*ter*, thrice), a supposed third integument of an ovule, really a layer of the primine or secundine.

**Terebra'tor** (*terebra*, a borer), Lindau's name for the so-called trichogyne in *Gyrophora*; **Terebratorhy'pha** (+ HYPHA) means the same.

**Tere'do** (Lat., a boring beetle), disease caused by the boring of insects.

**terete'**, *teres* (Lat., rounded), circular in transverse section, cylindric and usually tapering.

**tergem'inal**, = **tergem'inate**, *tergemina'tus*, *tergem'inus* (three at a birth), "thrice-twin" (Lindley).

**tergif'erous** (*tergum*, a back, *fero*, I bear), **tergisperm'ous**, *-us* (*σπέρμα*, a seed), bearing dorsal sporangia, as Ferns; **Ter'gum**, back, dorsum.

**ter'minal**, *termina'lis* (Lat., relating to boundaries), proceeding from or belonging to the end or apex; ~ **Bud**, a bud which is apical.

**Terminol'ogy** (*τέρμα*, a limit = term, *λόγος*, discourse), glossology, definition of technical terms; **Ter'minus** (Lat.), a term, a technical word.

**ter'nary**, *terna'rius* (Lat., consisting of three), in threes, trimerous; ~ **Hy'brid**, the result of crossing a hybrid with a species different from either of its parents.

**ter'nate**, *terna'tus* (*terni*, by threes), in threes, as three in a whorl or cluster; **ter'nate-pin'nate**, when the secondary petioles proceed in threes from the summit of the main petiole; **terna'tely trifo'liolate**, with three leaflets attached at one point, as in clover (Crozier); **ter'nus** = TERNATE.

**Ter'pene** (modif. of Turpentine), a group of hydrocarbons present in turpentine, liquid resin, or essential oils; **terp'enoid** (*εἶδος*, resemblance), Kerner's name for that group of flower-scents produced by terpenes, as Orange-flowers, *Gardenia*, Thyme, etc.

**terpin'nate** (*ter*, thrice, + PINNATE) = TRIPINNATE.

**terra'neus** ‡ (*terra*, earth), growing on dry land.

**terres'trial**, *terres'tris* (Lat., pertaining to the earth), used of plants of the dry ground; the Latin **terres'ter** is also employed; **ter'reus** (Lat., earthen), "earth coloured"; **ter'ricole**, **terric'olous** (*colo*, I inhabit), living on the ground, as some Lichens.

**Ter'tiospore** (*tertius*, third, *σπορά*, a seed), C. Macmillan's term for a fertilized egg which undergoes rejuvenescence and segments into usually four spores, motile and similar to the spores of a gametophyte generation; the result of sporophytic segmentation, as in *Oedogonium*.

**tessula'ris** (*tesserula*, a small square stone), of cubic dimensions, all sides equal.

**tes'sellate**, *tessella'tus* (Lat., of squared stones), chequer-work, as in *Fritillaria Meleagris*, Linn.

**Tes'ta** (Lat., a brick or tile), the outer coat of the seed, usually hard and brittle.

**testa'ceous**, *testa'ceus* (Lat., of bricks or tiles), brick-red.

**testic'ular**, **testic'ulate**, *testicula'tus* (Lat.), shaped like the tubers of *Orchis*, and fruit of *Mercurialis*; **Testic'ulus** ‡, **Tes'tis** ‡ (Lat.) = ANTHER.

**Tes'tule** (*testula*, a dim. of TESTA), an old name for FRUSTULE.

**te'ter** (Lat., offensive), having a foul smell.

**Tetrablas'tus** (*τέτρας*, four, *βλαστὸς*, a bud), Koerber's term for those Lichen-spores which consist of four cells; **tetracam'arous**, *-rus* (+ CAMARUS), of four closed carpels; **tetracarpel'lary** (*καρπὸς*, fruit), of four carpels; **Tetracaro'tin** (+ CAROTIN), a lipochrome pigment resembling carotin.

**Tetrachae'nium** ‡ (*τετρὰς*, four, + ACHAENIUM), a fruit of four adherent achenes, as in Labiatae; **Tetrachocar'pium** (*τέτραχα*, fourfold, *καρπὸς*, fruit) = TETRASPORE; **tetrachot'omous**, *tetrachot'omus* (*τέμνω*, I cut), when a cyme, in its restricted sense of fascicle, bears four lateral peduncles about the terminal flower.

**tetracoc'cous**, *-cus* (*τετρὰς*, four, *κόκκος*, a berry), (1) consisting of four closed carpels; (2) applied to bacteria when in four segments; **tetracy'clic** (*κύκλος*, a circle), when a flower is composed of four whorls of organs.

**Tet'rad** (*τετράδιον*, a set or group of four), a body formed of four cells, as in the formation of pollen in the pollen-mother-cells.

**tetrad'ymous** (*τετράδυμος*, fourfold), (1) having four cells or cases; (2) when the lamellae of an Agaric are arranged so that alternate lamellae are shorter than the intermediates, and one complete lamella terminates a set of four pairs, short and long.

**Tetradyna'mia** (*τετρὰς*, four, *δύναμις*, power), a Linnean class which is characterized by possessing tetradynamous stamens; **tetrady'namous**, *-mus*, having four long stamens and two short, as in Cruciferae; **tetrafolia'tus**, **tetrafo'lius** (*folium*, a leaf), four-leaved, more correctly tetra, phyllous; **tetrag'onal** (*γωνὶα*, an angle), four-angled; **Tetragonidan'gium** (+ GONIDANGIUM), a sexual reproductive organ in Floridean Algae, producing tetragonidia; **Tetragonid'ium** (+ GONIDIUM), asexually produced spores of Florideae, etc., usually in groups of four; **tetrag'onous** (*γωνὶα*, an angle), four-angled; **Tetragyn'ia** (*γυνὴ*, a woman), a Linnean artificial order, the members having flowers with four pistils; **tetrag'ynous**, of four carpels or styles; **tetram'erous**, *-rus* (*μέρος*, a part), of four members; **tetramor'phic** (*μορφὴ*, shape), having flowers of four forms, varying as to length of style, anthers and stigmas, as in *Epigaea repens*, Linn.; **tetran'der**, **tetran'drous** (*ἀνὴρ*, *ἀνδρὸς*, a man), with four stamens; **Tetran'dria**, a Linnean class of tetrandrous plants; **tetranu'cleate** (+ NUCLEUS), having four nuclei (Brebner); **tetra-pet'alous**, *-lus* (*πέταλον*, a flower leaf), having four petals; **tetraphylet'ic** (*φυλὴ*, a tribe), applied to hybrids with four strains in their descent; **tetraphyl'lous**, *-lus* (*φύλλον*, a leaf), four-leaved.

**tetraplocau'lous** (*τετραπλόος*, fourfold + CAULIS), having quaternary axes (Pax).

**tetrap'terous** (*τετρὰς* four; *πτερὸν*, a wing), four-winged, four produced angles; **tetrapyre'nus** (*πυρὴν*, a kernel), with four stones or seeds in the fruit; **tetraque'ter**, **tetraque'trous** (*quadra*, a square), with four sharp angles; **tet'rarch** (*ἀρχὴ*, beginning), with four vascular strands in a fibrovascular cylinder or stele.

**tetrari'nus** (*τετρὰς*, four, *ἄρρην*, male), Necker's version of TETRANDROUS; **tetraschis'tic** (*σχιστὸς*, split), dividing into four; **tetrasep'alous**, *-lus* (+ SEPALUM), having four sepals; **tetrasperm'ous** (*σπέρμα*, a seed), with four seeds; **Tetrasporan'gium** (+ SPORANGIUM), a unicellular sporangium containing tetraspores; **Tet'raspore** (*σπορὰ*, a seed), a spore formed by division of the spore-mother-cell into four parts; **tetraspor'ic**, **tetraspor'ous**, bearing tetraspores; **tetras'tichous**, *-chus* (*στίχος*, a row), in four vertical ranks.

**tex'tile**, *tex'tilis* (Lat., woven), used for weaving,

**Tex'ture**, *Textu'ra* (Lat., a web), applied by Starbäck to hyphal structures in Discomycetes, thus: ~ **epidermoi'dea**, the walls of hyphae more or less confluent; ~ **globo'sa**, when the cells are nearly isodiametric, the separate hyphae not distinguishable; ~ **intrica'ta**, the hyphae running in various directions, with walls not coalescent; ~ **ob'lita**, hyphae nearly parallel, and having small cavities with thickened walls; ~ **porrec'ta**, hyphae with large cavities and no thickened walls; ~ **prismat'ica**, cells not isodiametric, hyphae not distinguishable.

**thalamiflor'al, thalamiflor'ous** (*θάλαμος*, a bed-chamber, *flos, floris*, a flower), when the parts of the flowers are hypogynous, separately inserted on the thalamus; **Thalamiflor'ae**, a group of Phanerogams so distinguished; **Thala'mium**, (1) "a hollow case containing spores in Algals"; (2) "the disk or *Lamina prolifera* in Lichens"; (3) "a form of the hymenium in Fungals" (all from Lindley); **Thal'amus**, the receptacle of the flower, the torus.

**thalas'sinus, thalas'sicus** (Lat., from *θάλασσα*, the sea), sea-green; **Thalas'sophyte** (*φυτόν*, a plant), a marine Alga.

**Thallid'ium** (*θαλλός*, a sprout), a vegetative reproductive body, especially amongst Thallophytes and Muscineae (Kerner); **thal'line**, *thalli'nus*, **thallo'dal, thallo'dic**, *thallo'des*, **thal'lose**, pertaining to a thallus; **Thal'logams**, term used by Focke for Vascular Cryptogams; **Thallog'amae** (*γάμος*, marriage), Ardissone's term for Algae; **Thal'logen** (*γένος*, race, offspring), a synonym of THALLOPHYTE; **thal'loid** (*εἶδος*, resemblance), having the nature or form of a thallus; applied to Hepaticae in which the vegetative body is not a leafy stem, as *Marchantia*; **thalloi'dal** (Crozier) is a synonym; **Thal'lome**, a thallus-like growth; *cf.* CAULOME; **Thal'lophyte** (*φυτόν*, a plant), a plant whose growth is thalloid, no clear distinction of leaf or axis; **Thal'lus**, pl. **Thal'li**, (1) a vegetative body without differentiation into stem and leaf; in Fungi the whole of the body which does not serve for reproduction; (2) Goebel's term for the organ of attachment in *Terniola*, a genus of Podostomaceae, composed of coalesced dorsiventral branches; ~ **Gonid'ia**, the gonidia in the thallus of a Lichen; the Lichen thallus is subdivided into, ~ **lepo'des**, crustaceous; ~ **pla'codes**, foliaceous; ~ **thamno'des**, fruticose.

**Tham'nium** ‡ (*θάμνος*, a shrub), the bushy thallus of such Lichens as *Cladonia rangiferina*, Hoffm.; **thamnoblas'tus** (*βλαστός*, a bud), used by Koerber for a fruticose Lichen.

**Theba'ine** (from Thebes, where opium was much employed), one of the crystallized alkaloids occurring in the opium poppy.

**The'ca** (*θήκη*, a case), (1) the sporangium of a Fern; (2) the capsule of a Moss; (3) ‡ an anther; (4) ‡ used by Necker for the fruit of Myrtaceae; (5) ‡ "a cell of any sort" (Lindley); (6) = ASCUS; (7) used by Vines for the loculus of an anther; (8) "a hollow space in the pericarp formed by doubling of the endocarp" (Gray); **The'caphore** (*φορέω*, I carry), the stipe of a carpel, homologous with the petiole; **The'caspore** (*σπορά*, a seed), = ASCOSPORE; **thecaspor'ous**, used of Fungi which have the spores in Asci (Stormonth); **theca'tus**, bearing a theca; **the'cial**, possessing thecae or pertaining to them; ~ **Al'gae**, the hymenial gonidia of Lichens; **Thecid'ion**, *Thecid'ium* ‡ = ACHENE; **thecif'erous** (*fero*, I bear), bearing thecae or asci; **the'ciger**, *thecig'erus* (*gero*, I bear), theca-bearing, applied to the hymenium of Fungi, and branches

of Mosses which bear setae; **The'cium**, a layer of tissue below the epithecium, which contains the sporangia in Lichens (Minks), *cf.* EPITHECIUM, HYPOTHECIUM.

**The'in**, the most important alkaloid in the leaves of *Thea*, the tea-plant.

**The'ke**, sometimes used for the theca (ascus) of Lichens.

**theleph'oroid** (*Thelephorus*, *εἶδος*, resemblance), like the genus *Thelephorus*.

**thele'phorus** (*θηλή*, a nipple, *φορέω*, I carry), covered with nipple-like prominences.

**thelotre'moid**, having tubercular apothecia like those of *Thelotrema*.

**thelyg'enous** (*θῆλυς*, female, *γένος*, race, offspring), inducing the female element, as ~ **Castra'tion**, the production of pistils in the male-flowers of a host by *Ustilago*.

**Theobro'mine**, the active principle of the cacao-bean, *Theobroma Cacao*, Linn.; **theobro'minus**, the deep chocolate brown of the seed of the same plant.

**theoret'ic** (*θεωρητικός*, speculative), pertaining to theory, as distinct from practice; ~ **Di'agram**, a floral diagram of the theoretic components, not necessarily the same as seen on inspection.

**ther'mic** (*θέρμη*, heat), warm; ~ **Con'stant**, the sum of the mean temperatures of the days of active vegetation, up to some definite phase in the plant's life, minus a certain initial temperature determined by several years' observations, and varying for the species (Oettinger); **Ther'mo-cleistog'amy** (+ CLEISTOGAMY), when flowers do not expand as a consequence of insufficient warmth (Knuth); **Thermotax'is** (*τάξις*, order), changes produced by warmth; adj. **thermotac'tic**; **thermoph'ilic** (*φιλέω*, I love), applied to those bacteria which thrive in high temperatures; **Thermot'onus** (*τόνος*, strain), the relation between temperature and the manifestation of irritability; **thermotrop'ic** (*τροπή*, a turning), relating to **Thermot'ropism**, curvature dependent upon temperature (Wortmann).

**Thick'ening Lay'er**, an apparent layer of cellulose on the inner face of a cell-wall; ~ **Ring**, Sanio's term for a ring of meristem in which the first fibro-vascular bundles originate.

**Thigmot'ropism** (*θίγμα*, anything touched), curvature induced in climbing plants by the stimulus of a rough surface (Czapek); **Thigmotax'is** (*τάξις*, order) is a synonym; adj. **thigmotac'tic**.

**Thorn**, usually an aborted branch, simple or branched.

**Thread**, used by Blair for the FILAMENT; **Thread-ind'icator**, a form of apparatus for measuring the rate of growth; **thread-shaped**, filiform.

**three-an'gled**, trigonous; ~ **cleft**, trifid; ~ **cor'nered**, ~ **edged**, with three sides, plain or incurved, and three acute angles, triquetrous; ~ **leav'ed**, trifoliate; ~ **lobed**, trilobed; ~ **nerved**, with three principal veins; ~ **parted**, tripartite; ~ **ranked**, with three vertical rows on a stem; ~ **ribbed**, the midrib and one rib on each side more prominent than the rest; ~ **valved**, trivalvate.

**thrice-digita'to-pin'nate**, = TRITERNATE.

**Throat**, the orifice of a gamopetalous corolla or calyx, the fauces.

**Thrum** (Grew), **Thrumb** (Blair), (1) the filament of a stamen, (2) in Composite florets, the anthers; **thrum-eyed**, applied to a short-styled dimorphic flower, such as a primrose, the stamens alone being visible in the throat of the corolla.

**Thrush-fun'gus**, the disease ascribed to *Dermatium albicans*, Laurens.

**Thun'der-broom** = WITCHES' BROOM.

**Thyll**, **Thyl'la**, **Thy'lose**, **Thy'llose** (Germ. Thylle), *cf.* TYLOSE.

**thy'roid** (*θυρεός*, a shield, *εἶδος*, resemblance), shield-like, peltiform (Heinig).

**Thyrse**, *Thyr'sus* (Lat., the Bacchic staff), a mixed inflorescence, a contracted or ovate panicle, the main axis indeterminate, but the secondary and ultimate axes cymose ; **thyrsif'erous**, *-rus* (*fero*, I bear), bearing a thyrse; **thyrsiflor'us** (*flos*, *floris*, a flower), the flowers in a thyrse ; **thyr'siform** (*forma*, shape), shaped like a thyrse ; **thyr'soid** (*εἶδος*, resemblance), like a thyrsus ; **Thyr'sula**, the little cyme which is borne by most Labiates in the axil of the leaves.

**Tige**, pr. teej (Fr., tige), stem ; **Tig'el**, = **Tigelle'**, *Tigel'la*, **Tigel'lum**, *Tigel'lus*, a miniature or initial stem, used for (*a*) caulicle or hypocotyl, (*b*) plumule ; **tigella'tus**, ‡ (1) having a short stalk, as the plumule of the Bean ; (2) when the stalk is well marked ; **Tigel'lula** ‡ a short filament or stalk observed in the Truffle; **tigellula'ris**, vascular.

**Tig'line**, the acrid principle in the seeds of *Croton Tiglium*, Linn.

**Til'ler**, a sucker or branch from the bottom of the stem ; **til'lering**, throwing out stems from the base of the stem ; **Til'low** (Crozier), = TILLER.

**Tim'ber-line**, the upper limit of arboreal vegetation on the mountains.

**tinctor'ious**, *-rius*, **tinctor'ial** (Lat., pertaining to dyeing), used for dyeing, imprinting colour.

**Tin'der-fung'us**, *Polyporus fomentarius*, Fr.

**Tinoleu'cite** (*τείνω*, I extend, + LEUCITE), Van Tieghem's term for directing spheres, the centrosomes.

**Tip**, used by Grew for ANTHER.

**Tis'sue**, the texture or material formed by the union of cells of similar origin and character, and mutually dependent; tissues united form systems, these again form organs ; ~ **Cord**, central cord (Crozier) ; **aq'ueous** ~ , a form of hypoderma, consisting of thin-walled parenchyma wanting chloroplastids, but containing much watery sap ; **Conjun'ctive** ~ , ground tissue arising from the plerome or young stele; **cutic'ularized** ~ , modified cell-walls, as epidermis and periderm ; **embryon'ic** ~ , = MERISTEM ; **ex'tra-ste'lar** ~ , see GROUND TISSUE ; **false** ~ = SPURIOUS ~ ; **glan'dular** ~ , composed of secreting cells or glands ; **Ground** ~ , fundamental tissue, neither vascular nor epidermal, either within or without the stele ; **heterog'enous** ~ , consisting of various kinds of cells ; **homoge'neous** ~ , when the cells are uniform ; **intra ste'lar** ~ = CONJUNCTIVE-TISSUE ; **lim'itary** ~ , epidermal tissue ; **parenchy'matous** ~ , (*a*) thin-walled, as pith cells ; (*b*) thick-walled, as collenchyma ; **per'manent** ~ , adult tissue ; **pri'mary** ~ first formed tissue ; **prosenchy'matous** ~ , woody tissue ; **sclerenchy'matous** ~ , thickened or hardened, as fibres or sclereids ; **sec'ondary** ~ , resulting from growth from continuous meristematic activity ; **sieve** ~ , of long articulated tubes, communicating by means of their sieve-plates in their walls ; **spu'rious** ~ , an approach to a tissue, by hyphas massing into a felt, or their apices forming a collective apical growing point ; **tegumen'tary** ~ , the external epidermal layer ; **tra'cheal** ~ , composed of tracheids, especially adapted for the conveyance of liquids ; **vas'cular** ~ , the components of the vascular system of a plant.

**Tme'ma** (*τμῆμα*, section), a cell ruptured in setting free a Moss-gemma (Correns).

**tofa'ceus** (Lat., formed of tufa), (1) tufa-coloured, buffy drab ; (2) gritty.

**Toise** (Fr., a fathom), a measure formerly used in France, 6·395 feet, 1·9492 metre, 6 French feet.

**Tolu'**, a resinous exudation from *Myroxylon toluiferum*, H. B. K.

**to'mentose**, *tomento'sus*, **tomen'tous**, densely pubescent with matted

wool, or short hairs; **tomen'tulose**, slightly tomentose; **Tomen'tum** (Lat., cushioning), (1) pubescence; (2) ‡ mycelium.

**tomip'arous** (*τόμη*, a cutting, *pario*, I produce), Bory applies the term to all plants which reproduce themselves by fission; **Tom'iange** (*ἀγγεῖον*, a vessel), the organ which produces TOMIES; **Tom'ie**, pl. **Tom'ies**, Van Tieghem's name for asexual reproductive bodies which are neither SPORES nor DIODES, living cells which do not arise from an adult stage, but produce an adult individual direct; **Tom'iogone** (*γόνος*, offspring), the organ which produces TOMIES.

**Tongue** = LIGULE; **tongue-shaped**, long, nearly flat, fleshy and rounded at the tip, as the leaves of some Aloes.

**Ton'oplast** (*τόνος*, strain, *πλαστὸς*, moulded), De Vries's term for a vacuolar living membrane, controlling the pressure of the cell-sap; **Tonotax'is** (*τάξις*, order), sensitiveness to osmotic variation (Beyerinck).

**Tooth**, see TEETH; **toothed**, dentate; **Tooth'let**, a small or secondary tooth; **tooth'letted**, finely denticulate (Lindley).

**top-shaped**, inversely conical.

**Topia'ria**, pl. (Lat.), ornamental gardening; **topia'rian**, **top'iary**, relating to the same, especially used of trees and shrubs clipped into formal shapes.

**top'ical** (*τοπικὸς*, local), local, confined to a limited area.

**topha'ceous**, = TOFACEUS (2).

**Tor'als** (*torus*, a bed), Bessey's proposed name for THALAMIFLORAE.

**torfa'ceus**, *turfo'sus* (Henslow), growing in bogs.

**torn**, when marginal incisions are deep and irregular.

**to'rose**, *toro'sus* (Lat., fleshy, brawny), cylindric, with contractions or swellings at intervals; the diminutive is **torulo'sus**.

**Tor'sion**, a spiral twisting or bending; **a'pical** ~, lateral displacement of the segments of the apical cell in certain Mosses, resulting in the twisting of the resultant stem (Correns); **antid'romous** ~, against the direction of twining, as may be caused by friction of support; **homod'romous** ~, in the same direction as twining, the internode gyrating in the same way; **Torsion-sym'metry** (+ SYMMETRY), Schuett's term for those Diatoms whose valves are twisted; **torsi'vus** (Mod. Lat., squeezed out), spirally twisted, not quite as in contorted, there being no obliquity in the insertion, as in the petals of *Orchis*; **tor'tilis** (Lat., twisted), susceptible of twisting; **tor'tus**, twisted; **tor'tuous**, *tortuo'sus*, bent or twisted in different directions.

**torula'ceous** (+ aceous); **tor'uloid**, resembling the genus *Torula*, Pers.

**tor'ulose**, *torulo'sus* (*torulus*, muscular part), cylindric, with swollen portions at intervals, somewhat moniliform; ~ **Bud'ding**, increasing by budding as yeast.

**Tor'us** (Lat., a bed), the receptacle of a flower, that portion of the axis on which the parts of the flower are inserted; when elongated it becomes the GONOPHORE and GYNOPHORE; ~ **of Pits**, the thickening of the closing membrane in bordered pits.

**Touch'wood**, decayed wood due to fungus-mycelium, formerly used as tinder.

**Tox'in** (*τοξικὸν*, poison), a poisonous secretion by certain Fungi, which kills the cells of the host-plant and facilitates parasitism.

**Trabec'ula**, pl. **Trabec'ulae** (Lat., a little beam), a cross-bar, (1) the transverse bars of the teeth of the peristome in Mosses; (2) plates of tissue forming partial septa in the microsporangium of *Isoëtes*; (3) the lacunar tissue in *Selaginella*, between the cortex and the central bundle; **trabec'ular**, like a cross-bar; ~ **Duct**, ~ **Ves'sel**, a vessel

with cross-bar markings ; **trabec'ulate**, *trabecula'tus*, cross-barred ; **Trab'ecule**, = TRABECULA.

**Tra'chea** (Lat., the windpipe), a spiral duct or vessel ; **tra'cheal**, belonging to or resembling tracheae ; ~ **Cells**, tracheids ; ~ of the vascular bundles, the woody portion, the cribrose part associated with bast ; **tra'cheary**, = TRACHEAL ; **Tra'cheid** (*εἶδος*, resemblance), a closed cell having secondary thickening ; vasiform wood-cell of Goodale ; ~ **Seam**, a group of peculiarly thickened cells found in the leaves of Conifers on both sides of the vascular bundle, and formerly regarded as part of the transfusion tissue ; **Trachench'yma** (*ἔγχυμα*, an infusion), tissue composed of tracheids or spiral vessels; **Tra'cheome**, stated by Potonié not to be the tracheal, but the hydral system of the bundle, he therefore names it HYDROME.

**trachycar'pous**, *-pus* (*τραχύς*, rough to the touch, *καρπός*, fruit), rough-fruited ; **trachysperm'ous**, *-mus* (*σπέρμα*, a seed), rough-seeded.

**Tractel'lum** (*tractus*, dragged), the anterior flagellum of the zoospore of Saprolegnieae (Hartog).

**Trag'acanth**, a gum which flows from *Astragalus Tragacantha*, Linn. ; **Tragacan'thin**, the same as BASSORIN.

**trail'ing**, prostrate but not rooting.

**trajec'tile**, *trajec'tilis* (*trajectus*, a passing over), when the connective completely separates the anther-cells.

**Tra'ma** (Lat., weft), a mass of hyphae in the lamellae of some Fungi, from which the hymenium springs ; Fayod subdivides it thus : ~ **contex'ta**, the hyphae usually parallel, or slightly oblique ; ~ **inver'sa**, when they are derived from the sub-hymenium ; ~ **permix'ta**, when without apparent order.

**transa'pical** (*trans*, across or beyond, + APICAL), used by O. Mueller for ~ **Ax'is**, at right angles to the apical axis, passing through the centre of the pervalvar (main longitudinal) axis of a Diatom ; ~ **Plane**, the plane at right angles to both valvar and apical planes, passing through the pervalvar and transapical axis (O. Mueller) ; **Transec'tion** (*sectio*, a cutting), a term proposed by C. Macmillan for "transverse section."

**Trans'fer** (*transfero*, I bring over), of water, the passage of water by ducts or cells.

**Transforma'tion** (*transformatio*, a change of shape), (1) metamorphosis ; (2) morphologic changes in an organ during its existence ; adj. **transformed'** ; as ~ **Branch**, may be a tendril, thorn, or similarly changed organ ; ~ **Cell**, the final shape of the cell, as a fibre, tracheid, etc.

**Transfu'sion** (*transfusio*, a pouring out), transference ; ~ **Tis'sue**, of two kinds of cells ; (*a*) unpitted, with abundant protoplasmic contents ; or (*b*) tracheidal cells, with similar contents ; ~ **Strand**, consisting of parenchymatous or slightly thickened cells at the junction of the phloëm and xylem bundle elements, when a ring of sclerenchyma is formed.

**Transit'ion** (*transitio*, a passing over) **Cells**, cells which are continuations of sieve-tubes, the longitudinal division into sieve-tubes and companion cells stops, and **Transit'ion-tissue** is formed; **transitor'ius** (Lat., adapted for passing through), temporary, soon passing away (S. F. Gray).

**Transla'tor** (Lat., a transferrer), employed for the RETINACULUM of Asclepiads.

**Transloca'tion** (*trans*, across, *locatio*, a placing), the transference of reserve material from one part to another.

**Transmis'sion** (*transmissio*, a sending across), used for the conveyance of stimulus as in *Drosera* and *Mimosa pudica*, Linn., other leaves

acting in sympathy; ~ **Cells** = TRANSFUSION-TISSUE.

**Transmuta'tion** (*transmuto*, I shift), chemical change by addition or alteration of composition without complete resolution into its elements; ~ **of Host**, = LIPOXENY.

**Transovula'tae** (*trans*, across, + OVULUM), Van Tieghem's term for Phanerogams furnished with transitory ovules; **Transpira'tion** (*spiratio*, a breathing), the exhalation of watery vapour from the stomata of plants, not mere evaporation.

**Trans'port** (*transporto*, I carry across), the conveyance of assimilated substance from one part to another; translocation.

**transver'sal** (*transversus*, athwart), lying crosswise; ~ **Ax'is** of Diatoms, that axis which lies in the transversal plane, cutting the pervalvar (main longitudinal) axis (O. Mueller); ~ **Wall**, that which divides the basal and median walls of the proëmbryo of Archegoniatae, at right angles into upper and lower halves; **transver'san Plane**, that which passes through the centre of a Diatom frustule vertically to the pervalvar axis (O. Mueller); **tran'sverse**, *transver'sus*, *transversa'lis*, across, right and left as to bract and axis, collateral; Lindley gives "broader than long" as the definition of *transversus*; ~ **Cho'risis**, when two or more organs instead of one appear above or within another; ~ **Geot'ropism**, = DIAGEOTROPISM; ~ **Heliot'ropism** = DIAHELIOTROPISM; ~ **Planes**, those which cut the axis of growth and surface at right angles.

**trape'ziform**, *trapezifor'mis* (τραπέζιον, a figure of four unequal sides, *forma*, shape), an unsymmetrical four-sided figure, as a trapezium, almost the same as rhomboid; **trap'ezoid**, *-deus* (εἶδος, resemblance), like a trapezium.

**Trap-hairs**, the special hairs which confine insects in certain flowers till pollination is effected; *cf.* WICKER-HAIRS.

**Traps**, pl., Prison-flowers, such as *Aristolochia*, which confine insect visitors until pollination has taken place.

**Traube's Cells**, artificial cells formed by various solutions of gelatine and other colloids, which have been used to explain the phenomena of intussusception.

**traumatrop'ic** (τραῦμα, a wound, τροπή, a turning), showing the influence of wounded root-tips; ~ **Cur'vature**, the bending of roots in consequence of injury to their tips; **Traumat'ropism**, Pfeffer's term for the phenomena consequent on the infliction of wounds on the tip of a growing root.

**Tre'halase**, an enzyme which hydrolizes **Tre'halose**, a sugar found in many Fungi and stated to be identical with the "Trehala" (Persian Manna), a waxy excretion produced by a coleopterous larva to form its cocoon.

**tremel'loid** (*Tremella*, εἶδος, resemblance), jelly-like in substance or appearance, like the genus *Tremella*.

**Tree**, a woody plant with an evident trunk; **tree-like**, resembling tree, but smaller; dendroid.

**tri**, in compounds, from Greek (τρεῖς) or Latin (*tres*) = three or triple.

**Triachae'nium** (*tri*, from *tres*, three + ACHAENIUM), like a cremocarp, but of three carpels; **Triadel'phia** (ἀδελφός, a brother), a Linnean order of plants with their stamens in three sets; **triadel'phous**, filaments in three brotherhoods; **Triake'nium** = TRIACHAENIUM; **triander** = **trian'drous**, **trian'drian** (ἀνήρ, ἀνδρός, a man), having three stamens; **Trian'dria**, a Linnean class of three-stamened plants; **trian'gular**, *triangula'ris* (*angulus*, an angle), with three angles; **triangula'tus** (Lat.), three-angled; **trian'thous** (ἄνθος, a flower), three-flowered, as a peduncle; **tri'arc**

(ἀρχή, beginning), a fibrovascular cylinder with three ligneous groups; **triari'nus** (ἄρρην, male), Necker's term for TRIANDROUS.

**Tribe,** *Tri'bus* (Lat., a division of the people), a group superior to a genus, but less than an order.

**triblas'tus** (τρεῖς, three, βλαστός, a bud), Koerber's term for a Lichen-spore, which is trilocular and able to germinate from each loculus.

**trib'uloid** (εἶδος, resemblance), like the fruit of *Tribulus*, beset with sharp bristles, echinate (Heinig).

**Tri'ca** (deriv. ?), a button-like apothecium of the genus *Gyrophora*.

**tricam'arus** (*tri*, three, + CAMARUS), when a fruit is composed of three loculi; **tricar'inate** (*carinatus*, keel-formed), with three keels or angles, as certain Diatoms; **tricarpel'lary, tricar'pellate, tricar'pous,** *-pus* (καρπός, fruit), of three carpels; **tricel'lular** (+ CELLULAR), consisting of three cells (A. Braun); **triceph'alous,** *-lus* (κεφαλή, a head), triple-headed, with three heads of flowers.

**Trichid'ium** (θρίξ, τριχός, a hair or bristle) = STERIGMA; **trichif'erous** (*fero*, I bear), producing or bearing hairs; **trich'iform** (*forma*, shape), bristle-shaped (J. Smith); **Trich'ite,** a needle-shaped crystal of amylose in starch grains, stated to form the latter by aggregation (A. Meyer); **Trichobacte'ria** (+ BACTERIA), those bacteria which possess cilia; **Trich'oblast** (βλαστός, a bud), used by Sachs for such IDIOBLASTS as are especially distinguished by their size or branching; **trichocar'pus** (καρπός, fruit), when fruit is covered with hair-like pubescence; **trichoceph'alus** (κεφαλή, a head), when flowers are collected into heads, and surrounded by hair-like appendages; **tricho'des** (εἶδος, resemblance), resembling hair; **Trichogo'nium** (γονή, race, offspring), a proposed emendation of TRICHOGYNE; **Trich'ogyne** (γυνή, a woman), (1) the receptive filament of the procarp in certain Algae, by which fertilization is effected; (2) in the Lichen genus *Gyrophora*, by Lindau termed TEREBRATOR; **trichogyn'ial,** relating to a trichogyne; **Tricholo'ma** (λῶμα, a fringe), when an edge or border is furnished with hairs; **Trich'oma,** pl. **Trichom'ata,** (1) the filamentous thallus of such Algae as *Conferva* (Lindley); (2) the filaments in *Nostoc*.

**trichom'anoid** (*Trichomanes*, εἶδος, resemblance), like the genus *Trichomanes* in habit.

**Trich'ome,** *Tricho'ma* (τρίχωμα, a growth of hair), any hair-like outgrowth of the epidermis, as a hair or bristle; **Trich'ophore** (φορέω, I carry), a row of cells of a procarp bearing the trichogyne in Florideae; **Trichoph'orum,** the stipe of Fungi when formed of "filaments" (Henslow); **trichophyl'lus** (φύλλον, a leaf), hair-like leaves, that is, finely cut; **Trichosporan'ge** = **Trichosporan'gium** (+ SPORANGIUM), Thuret's term for the multilocular sporangium of the Phaeosporeae, apparently of jointed hairs; **trichothal'lic** (θαλλός, a sprout), when the shoot ends in one or more multicellular hairs or tuft of such; ~ **Gemma'tion,** the origin of young plants from the hairs scattered on the thallus of *Asperococcus*; ~ **Growth,** with filiform thallus, the tips bearing tufts of hairs.

**trichot'omous,** *-mus* (τρίχα, in a three-fold manner, τομή, a cutting), three-forked, branching into three divisions; **Trichot'omy,** division into threes.

**tricoc'cous,** *-cus* (*tri*, three, + COCCUS), consisting of three cocci; **tri'color,** (*color*, colour), having three colours; **tricos'tate** (*costatus*, with ribs), having three ribs; **tricotyle'donus** (+ COTYLEDON), when three cotyledons are present, or when one or two are so deeply divided as to seem double.

**tricus'pid, tricus'pidate,** *tricuspida'tus*

(*tricuspis*, having three points or tines), tipped with three cusps or pointed tips.

**tricus'sate** (*tri*, three, + cussate), used for whorls of three leaves each, the leaves of each whorl alternating with those above and below; *cf.* DECUSSATE (G. Henslow).

**tricy'clic** (*τρι*, from *τρεῖς*, three, *κύκλος*, a circle), when the members of a series are in three whorls.

**triden'tate**, *tridenta'tus* (*tridens*, three-pronged), three-toothed, trident-pointed.

**tridig'itate**, *tridigita'tus* (*tri*, three, *digitus*, a finger), thrice digitate, ternate.

**tri'duus** (*triduum*, the space of three days), lasting three days.

**tridy'mus** (*τρίδυμος*, triple), when of three laminae in Agarics, the middle is the larger.

**tridy'namous** (*τρι*, three, *δύναμις*, power), when three stamens out of six are longer than the rest; **trie'der** (*ἕδρα*, a seat), triangular.

**trien'nis, triennia'lis** (*triennium*, the space of three years), lasting three years.

**trifar'iam** (Lat., triply), **trifar'ious**, *-ius*, facing three ways, in three vertical ranks.

**trif'id**, *trif'idus* (Lat.), three cleft.

**trifo'rous** (*tri*, three, *flos*, *floris*, a flower), three - flowered; **trifo'liolate**, *trifoliola'tus* (+ FOLIOLATE), with three leaflets; **trifo'liate**, *trifolia'tus*, *trifo'lius* (*folium*, a leaf), three-leaved.

**triform'is** ‡ (Lat., having three forms), bearing flowers of three different kinds, as certain Composites; trimorphic.

**trifur'cate** (*trifurcus*, with three prongs), having three forks or branches.

**trig'amous** (*τρι*, three, *γάμος*, marriage), bearing three kinds of flowers; trimorphic.

**trigem'inous** (*trigeminus*, triplets), tergeminate, trijugate.

**tri'glans** (*tri*, three, *glans*, an acorn), containing three nuts within an involucre, as *Castanea sativa*, Mill.

**trig'onal** (*τρίγωνος*, three-cornered), three - angled; **Trig'ones**, pl., Spruce's term for the thickening in the angles of the cells of the leaves in certain Hepatics, or as in collenchyma; **trigonocar'pus** (*καρπὸς*, fruit), fruit having three evident angles: **trig'onous**, *-nus*, three-angled, with plane faces.

**Trigyn'ia** (*τρι*, three, *γυνή*, a woman), a Linnean order of plants with three styles; **trig'ynous**, *-nus*, with three pistils or styles.

**trihila'tus** (*tri*, three + HILUM), having three apertures, as in some grains of pollen; **triju'gate**, *triju-ga'tus*, **triju'gous**, *tri'jugus* (*jugum*, a yoke), with three pairs of pinnae; **trilam'ellar** (*tri*, three, *lamella*, a plate of metal), applied to a compound stigma having three divisions flattened like bands; **trilat'eral**, *trilatera'lis* (*latus*, *lateris*, a side), prismatic, with three sides; **trilo'bate**, *trilo'bus* (*lobus*, a lobe), three-lobed; **triloc'ular**, *trilocula'ris* (*loculus*, a little cell), three-celled; **tri'merous**, *-rus* (*μέρος*, a part), in threes, three membered parts.

**trimes'tris** (Lat., of three months), lasting three months, or maturing in that time, as *Lavatera trimestris*, Linn.

**trimor'phic, trimor'phous** (*τρι*, three, *μορφή*, shape), occurring under three forms, of stamens and styles, long, short, and intermediate; **Trimonoe'cism** (+ MONOECISM), monoecious, but existing in trimorphous condition; **Trimor'phism**, heterogony, with long-, short-, and mid-styled flowers.

**tri'mus** (Lat.), lasting three years.

**triner'vate**, *trinerva'tus*, **trinerved'**, *triner'vis*, *triner'vius* (*tri*, three, *nervus*, a nerve), three-nerved; **trinervula'tus** (Lat.), with three nerve-like strands in the placenta; **trino'dal** (*nodus*, a knot), with three nodes or joints; **Trioe'cia**

(*οἶκος*, a house), a Linnean order of plants with trioecious flowers; **trioe'cious**, with staminate, pistillate, and hermaphrodite flowers on three distinct plants; **trioe'ciously hermaph'rodite** = TRIMORPHIC; **trioi'cous**, *-cus*, the mode of spelling preferred by bryologists; **trioper'culate**, *triopercula'tus* (+ OPERCULUM), having three lids; **triov'ulate**, *triovula'tus* (+ OVULUM), with three ovules; **tripaleola'tus** (+ PALEA), consisting of three paleae, as the flowers of bamboo; **tripar'ted** (*partitus*, cleft), parted to the base in three divisions; **tripar'tible** (*partibilis*, divisible), tending to split into three parts.

**tripar'tite** (*tripartī'tus*, three-fold), divided into three parts.

**tripen'nate**, *tripenna'tus* (*tri*, three, *penna*, a feather), = tripinnate; **tripet'aloid**, *tripetaloi'deus* (*πέταλον*, a flower-leaf, *εἶδος*, resemblance), as if three-petalled; **tripet'alous**, *-lus*, having three petals; **Triphyl'lome** (*φύλλον*, a leaf), hypothetically three segments to form a carpel, two hypophylls, superior and fertile, the third sterile and inferior (Pasquale); **triphyl'lous**, *-lus*, three-leaved; **tripin'nate**, *tripinna'tus* (+ PINNA), thrice pinnate; **tripinnat'ifid**, *tripinnatif'idus* (*fid*, from *findo*, I cleave), thrice pinnatifid; **tripinnat'isect** (*sectus*, cut), thrice pinnatisect.

**triphylet'ic** (*τρι*, three, *φυλετικός*, tribal), used of hybrids containing the blended strains of three species.

**Trip'lasy** (*triplasius*, threefold), the division of an organ into three analogous structures (Fermond).

**trip'le-nerved**, ~ **ribbed**, ~ **veined** (*triplex*, threefold), with a midrib dividing into three, or sending off a strong branch on each side above the base of the blade; **trip'lex**, triple; **trip'licate**, **triplica'tus** (Lat.), in a triple manner, as **triplica'to -gemina'tus**, = tergeminate; ~ **-nerva'tus**, = triplinerved; ~ **-pinna'tus**, = tripinnate; **trip'licate-ter'nate**, = triternate (Crozier); **trip'lici-ter** (Lat.), thrice repeated; **triplicos'tate** (*costatus*, ribbed), having three ribs, triple-ribbed; **tripliform'is** (*forma*, shape), as *tripliform'ia Fo'lia*, "leaves resembling the triple-leaved form" (Lindley); **triplinerved'**, *triplinerv'is*, *-vius* (*nervus*, a nerve), see TRIPLE-NERVED, etc.

**trip'lo-caules'cent** (*triplus*, triple + CAULESCENT), when a plant has a third (tertiary) system of axes; **trip'lus** (Lat.), threefold; **triplocau'lous** (+ CAULIS), possessing ternary axes (Pax).

**trip'terous**, *-rus* (*τρι*, three, *πτερόν*, a wing), three-winged.

**trique'ter**, **trique'trous**, *trique'trus* (Lat., three-cornered), three-edged, with three salient angles.

**triqui'nate**, *triquina'tus* (*tri*, three, + QUINATUS), divided into three, then into five; **tri'sect**, **trisec'ted**, *trisec'tus* (*sectus*, cut), divided into three, three-cleft to the base; **trisep'alous**, *trisep'alus* (+ SEPALUM), having three sepals; **trisep'tate** (+ SEPTUM), with three septa or partitions, as in many spores; **trise'rial**, *triseria'lis*; **trise'riate**, *triseria'tus* (*series*, a row), in three horizontal ranks or series, trifarious; **trisperm'ous** (*σπέρμα*, a seed), three-seeded; **tristach'yus** (*στάχυς*, a spike of corn), three-spiked; **tris'tichous**, *-chus* (*στίχος*, a series), in three vertical ranks; **tristigmat'ic**, *tristigmat'icus* (+ STIGMA), having three stigmas.

**tris'tis** (Lat., sad), of a dull or unattractive colour, as the flowers of *Matthiola tristis*, R. Br.

**tristy'lous**, *-lus* (*tri*, three, + STYLUS), with three styles; **trisyncotyle'donous** (De Vries), = TRICOTYLEDONOUS.

**trisul'cate**, *trisulca'tus* (*trisulcus* having three furrows), with three grooves or furrows.

**triter'nate** (*tri*, three, + TERNATE), thrice ternate.

**Tri'ticin**, the proteid of wheat, *Triticum vulgare*, Vill., present in its gluten.

**triun'dulate** (*tri*, three, + UNDULATE), used for Diatoms having three undulations on the dorsal side of the valve.

**trival'vular** (*tri*, three, + VALVULAR), three-valved.

**triv'ial** (*trivialis*, common-place), ordinary, common; ~ **Names**, the common name of a plant, the adjective, or more rarely, the second substantive appended to a generic name to connote a species.

**Trix'eny** (*τρι*, three, *ξένος*, a guest or host), De Bary's term for the condition of a parasite which passes its career in three host-plants.

**troch'lear**, *trochlea'ris* (*trochlea*, a pulley), **trochlea'riform** (*forma*, shape), pulley-shaped.

**troph'ic** (*τροφή*, nourishment), relating to increase in thickness, *cf.* TROPHY; **trophile'gic** (*λέγω*, I collect), collecting food-material for the plant, as the shell-like barren fronds of *Platycerium* are supposed to do (Archangeli); **Troph'ophyte**, an error for TROPOPHYTE; **Troph'oplast** (*πλαστός*, moulded), A. Meyer's term for the essential granules in protoplasm, *cf.* PLASTID; **Troph'oplasm** (*πλάσμα*, that formed), the ALVEOLAR-PLASMA of Strasburger; **Troph'opollen** ‡ (+ POLLEN), the partition of an anther-loculus or its remains (Lindley); **Troph'osperm**, *Trophosperm'ium*, *Trophosper'mum* (*σπέρμα*, a seed), = PLACENTA; **Trophotax'is** (*τάξις*, order), Stahl's term for **Trophot'ropism** (*τροπή*, a turning), phenomena induced in a growing organ by the chemical nature of its environment; **Troph'y**, pl. **Troph'ies**, Wiesner's term for all unequal lateral growth of tissue or organ, depending on its relation to the horizon and the mother-shoot.

**trop'ical**, *trop'icus* (Lat., pertaining to a turning), (1) growing within the tropics; (2) used for flowers which expand in the morning and close at night during several successive days.

**Trop'is** (*τρόπις*, the keel of a vessel), in composition used for the keel of a papilionaceous flower, or resembling the same.

**Trop'ism** (*τροπή*, a turning), a curvature which results from a response to some stimulus; **tropoph'ilous** (*φιλέω*, I love), loving change of condition, as TROPOPHYTES; **Trop'ophyte** (*φύτον*, a plant), applied to the large majority of plants, which are xerophilous and hygrophilous according to season (A. F. W. Schimper).

**True-par'asite** = OBLIGATE-PARASITE.

**Trum'pet-hy'phae**, tubes in Laminarieae having swollen portions with transverse septa (F. Oliver); **trum'pet-shaped**, tubular, with dilated orifice.

**trun'cate**, *trunca'tus* (Lat., shortened), as though cut off at the end.

**Trun'cus** (Lat., tree-stem), (1) the main-stem or **Trunk** of a tree; (2) in Lichens, the thallus.

**Truss**, a florist's term for a flower-cluster.

**Try'ma** (*τρῦμα*, a hole or opening), Necker's term for a drupaceous nut with dehiscent exocarp, as the walnut.

**Tryp'sin** (*θρύπτω*, I break in pieces), a group of proteolytic enzymes analogous to the pancreatic ferment in animals, such as Bromelin and Papaïn; adj. **tryp'tic**.

**tubaeform'is** (*tuba*, a trumpet, *forma*, shape), trumpet-shaped; **tuba'tus** (Mod. Lat.) is a synonym.

**Tube**, *Tu'bus* (Lat., a pipe), (1) any hollow elongated body or part of an organ; (2) the united portion of a gamopetalous corolla or gamosepalous calyx, etc.; ~ **Germina'tion**, the germination of a spore in which the first product is a germ-tube; **tube-form**, **tube-shaped**, tubular or trumpet-shaped (Crozier).

**Tu'ber** (Lat., a tumour), a thickened and short subterranean branch, beset with buds or "eyes"; **Tu'bercle**, *Tuber'culum* (Lat.), (1) a little tuber; (2) a wart-like apothecium in *Verrucaria*; (3) any similar excrescence, as on roots, ascribed to the action of symbiotic organisms; **tu'bercled**, covered with warty excrescences, as the seeds of *Silene*; **Pri'mary Tu'bercle**, is used by Treub to denote an ovoid body formed by the germination of the spore of *Lycopodium*; **Tu'bercorm** (+CORM), J. Smith's name for such fleshy roots as the beet, yam, and turnip; **tuber'cular**, having tubercles or like a tubercle; **tuber'culate**, *tubercula'tus*, beset with knobby projections or excrescences; **Tu'bercule**, a tuberous root, as of the *Dahlia* (Crozier); **tuber'culose**, **tuber'culous**, consisting of or having tubercles; **tuberif'erous** (*fero*, I bear), tuber-bearing; **Tuberogem'ma** (+GEMMA), a bud-like tuber, occurring in the axil of the leaves, or as a root-tubercle, which asexually propagates the plant, as in *Ranunculus Ficaria*, Linn.; **tu'berose**, *tubero'sus*, **tu'berous** (Lat., full of humps), (1) producing tubers; (2) resembling a tuber.

**Tub'i**, pl. of **Tub'us**, the hymenial tubes of such Fungi as *Polyporus*; **tubiflo'rous**, *-rus* (*flos*, *floris*, a flower), when the florets are tubular, as in many Compositae; **tu'biform**, *tubiform'is* (*forma*, shape), tube-shaped; **Tubil'lus**, (1) an elongated cell of cellular tissue; (2) the tube of the filaments in Compositae; **tu'bular**, *tubula'tus*, apparently a cylindrical figure and hollow; ~ **Flo'ret**, in Compositae a disk or regular floret.

**Tub'ulus**, pl. **Tub'uli** (Lat., a small pipe), (1) the pores or hymenial tubes of some Hymenomycetous Fungi, as *Polyporus*; (2) in Pyrenomycetes, the prolonged apex of perithecium pierced by a canal, the same as NECK (5); **tubuliflo'rous**, *-rus* (*flos*, *floris*, a flower) = tubiflorous; **tubuliform'is** (*forma*, shape), = tubiform.

**Tuft**, used by Withering for CYME; **tuft'ed**, caespitose; ~ **Hairs**, a modification of stellate hairs, but branched from the base upwards (Weiss).

**tu'itans** (*tueor*, I defend), when leaves assume the sleep-position, appearing to guard the stem.

**Tülle** (Ger.) = TYLOSE.

**Tum'ble-weeds**, a name applied to certain weeds which break adrift when dry, and are blown to a distance, scattering their seeds by the way.

**tumes'cent** (*tumescens*, swelling up), somewhat tumid.

**tu'mid**, *tu'midus* (Lat., swollen), inflated, swollen.

**Tu'nic**, *Tun'ica* (Lat., an under-garment), (1) the skin of a seed, the spermoderm; (2) any loose membranous skin not formed from the epidermis (Lindley); (3) the coat of a bulb; (4) the peridium of certain Fungi; **tu'nicate**, *tunica'tus* (Lat.), having coats or tunics; **tu'nicated** is a synonym; ~ **Bulb**, one covered with complete enveloping coats, as an onion; *cf.* IMBRICATE BULB.

**tur'binate**, *turbina'tus* (Lat., cone-shaped); **turbiniform'is** (*forma*, shape), shaped like a top.

**turfa'ceus**, **turfo'sus**, = TORFACEUS, growing in bogs.

**Turges'cence** (*turgesco*, I swell), the distention of a cell or cellular tissue by water or other liquid; **turges'cent**, becoming turgid.

**tur'gid**, *tur'gidus* (Lat., inflated), swollen, but not with air; **Tur'gor** (Lat.), turgidity, turgescence.

**Tu'rion**, *Tu'rio* (Lat., a shoot), a scaly sucker, or shoot from the ground, as *Asparagus*; **turionif'erous**, *-rus* (*fero*, I bear), throwing up turions.

**Turm'eric** (said to be from *terra merita*, valuable earth), the powdered rhizome of *Curcuma longa*,

Linn., which yields a yellow dye.

**turned**, in botany, directed towards; as ~ **in'wards** = introrse; ~ **out'wards** = extrorse.

**tur'nip-shaped**, also termed napiform.

**Tur'pentine** (*terebinthus*, turpentine tree), the solution of resins in terebene; ~ **Ves'sels**, tubes in the wood in which the turpentine collects during growth, common in Conifers.

**Tus'sock**, a tuft of grass or grass-like plants.

**Twig**, a small shoot or branch of a tree; ~ **Cli'mbers**, Schenck's term for certain Brazilian lianes, the young leafy lateral branches being sensitive where in contact with their supports; ~ **Gall**, a morbid growth ascribed to the action of bacteria; ~ **-like**, long, flexible and wandlike.

**Twin**, in pairs, geminate, didymous.

**Twi'ners**, plants which twine or climb by winding their stems round their support; **twi'ning**, winding spirally.

**twist'ed**, contorted.

**two-cleft**, bifid; ~ **-edged**, ancipital, laterally compressed with two sharp angles parallel with the axis; ~ **-forked**, dichotomous; ~ **-lipped**, bilabiate; ~ **-parted**, bipartite; ~ **-ranked**, distichous; ~ **-toothed**, bidentate.

**tychopot'amic** (*τύχη*, chance, *ποταμὸς*, a river) **Plank'ton**, the floating organisms of pools and river overflows (Zimmer).

**tylic'olor** (Mod. Lat.), the colour of a woodlouse, slate or dark grey.

**Ty'lose**, *Tylo'sis* (*τύλος*, a callosity), a cell intruding into a duct.

**tym'paniform** (*tympanum*, a drum, *forma*, shape), drum-shaped, as the membrane covering a Moss-capsule; **Tym'panum**, the membrane across the mouth of the capsule of a Moss, the epiphragm.

**Type**, the ideal representative of a group, genus, species; ~ **Spec'imen**, the original specimen from which a description was drawn up; **typ'ical**, *typ'icus*, representing the plan or type; ~ **Cells**, fundamental cells; ~ **Di'agram**, the resultant form from several empiric diagrams.

**Typhe'tum**, Warming's term for an association of *Typha* plants.

**Ty'rosin** (*τυρὸς*, cheese), an amide, similar to Asparagin; **Ty'rosinase**, an oxidising enzyme which attacks the chromogen of certain Fungi (Bertrand).

**Ubi'quist** (*ubique*, everywhere), used by Thurmann and adopted by Warming for a plant which occurs on any kind of geologic formation.

**ulig'inose**, *uligino'sus*, **ulig'inous**, *uliginar'ius* (Lat., marshy), growing in swamps; **ulig'inal**, occasionally used for the foregoing.

**Ul'na** (Lat., the elbow), a measure of about twenty-four inches; **ulna'ris**, the length of the forearm.

**uloden'droid** (*εἶδος*, resemblance), like the former fossil genus *Ulodendron*, Rhode, applied to branches of *Lepidodendron* and *Sigillaria*, bearing two opposite rows of large, cup-shaped scars (Scott).

**u'lothrix** (*οὖλος*, shaggy, *θρὶξ*, hair), in hair-like crisped linear divisions (Henslow).

**ulter'ior** (Lat., farther) **Pith**, cellular structure formed in the axis of the root after the separation of the stele (Frémont).

**ul'tra-seta'ceous** (*ultra*, beyond, *seta*, a bristle, + aceous), very long drawn out.

**Um'bel**, *Umbel'la* (Lat., a sunshade), (1) an inflorescence, properly indeterminate, in which a cluster of pedicels spring from the same point, like the ribs of an umbrella; (2) ‡ the pileus of certain Fungi (Lindley); **com'pound** ~, when each ray itself bears un umbel; **cy'mose** ~, an apparent umbel, but with the flowers opening centrifugally; a cyme which simulates an umbel; **par'tial** ~, **sim'ple** ~, an umbel each of whose rays bears

a single flower only; **um'bellate**, *umbella'tus*, having the inflorescence in umbels; **Um'bellet**, a small umbel or a simple one; **Umbel'lifer** (*fero*, I bear), a plant which bears umbels; **umbellif'erous**, *-rus*, bearing umbels; **umbel'liform**, *umbelliform'is* (*forma*, shape), umbrella-shaped; **umbelliflo'rus** (*flos*, *floris*, a flower), umbellate; **Um'bellule**, *Umbel'lula*, an ultimate umbel in a compound one; **umbel'lulate**, *umbellula'tus*, having partial or secondary umbels; **umbellulif'erous**, *-rus* (*fero*, I bear), bearing simple umbels.

**um'ber**, a cool brown; *cf.* UMBRINUS.

**umbili'cal** (pertaining to the *umbilicus*, the navel) **Cord**, a vascular strand by which seeds are sometimes attached to the placenta, the funicle; **umbili'cally**, as a Lichen thallus centrically affixed to its matrix, or an epithecium which is navel-like; **umbili'cate**, *umbilica'tus*, (1) navel-like, depressed in the centre; (2) ‡ = PELTATE; **Umbili'cus**, (1) the hilum of a seed; (2) the ostiole of certain Fungi (Lindley); (3) a much branched rhizoid in some Lichens, as in *Umbilicaria*; (4) the boss on the valves of some Diatoms.

**Um'bo** (Lat., any convex elevation), a boss, as the centre of the apophysis of the cone-scales in *Pinus Pinaster*, Soland.; **um'bonate**, *umbona'tus*, bearing an umbo or boss in the centre; **umbo'nulate**, *umbonula'tus*, having or ending in a very small boss or nipple.

**umbraculif'erous** (*umbraculum*, a sunshade, *fero*, I bear), having the shape of an expanded umbrella; **umbra'culiform**, *umbraculiform'is* (*forma*, shape), having the general form of a parasol, as the stigmas of *Sarracenia*; **Umbra'culum**, the stalked capitulum of the sporophore in *Marchantia*, bearing the reproductive organs on the underside.

**umbratic'olous** (*umbraticus*, shady, *colo*, I inhabit), growing in shady places.

**umbrel'la-shaped**, umbraculiform.

**umbri'nus** (Mod. Lat.), the colour of raw umber, a cool but turbid brown; burnt umber is deeper and warmer.

**umbro'sus** (Lat., shady), growing in shady places.

**unangula'tus** (*unus*, one, *angulus*, a corner), one-angled, as applied to a stem or similar organ.

**unarmed'**, destitute of prickles or other armature; sometimes it means pointless, muticous.

**un'cate**, *unca'tus* (Lat.), hooked, bent at the tip in the form of a hook; **Un'ci**, pl. of **Un'cus** (Lat., a hook), hooks, uncinate hairs.

**Un'cia** (Lat.), an inch; **uncia'lis** (Lat.), one inch in length; about 2·6 cm.

**uncer'tain**, indeterminate.

**un'ciform**, *uncifor'mis* (*uncus*, a hook, *forma*, shape), hook-shaped; **un'cinate**, *uncina'tus*, hooked.

**uncov'ered**, naked.

**unc'tuous**, *unctuo'sus* (*unctus*, anointment), having a surface which feels greasy.

**Unc'us** (Lat.), a hook, or hooked hair.

**un'date**, *unda'tus* (*unda*, a wave), waved, undulate; Crozier also gives **un'dated**.

**underly'ing**, used for SUCCUBOUS leaves of Hepaticae (Potter).

**undo'sus** (Lat., billowy), undulate, wavy.

**un'dulate**, *undula'tus* (Lat.), wavy.

**Un'derleaves**, stipules in Hepatics; **Un'dershrub**, (1) any low shrub; (2) ‡ partially herbaceous, the ends of the branches perishing during the winter.

**une'qual** (*un* = not, + EQUAL), (1) dissimilar; (2) applied to stamens of diverse lengths, ~ **si'ded**, irregular; **une'qually pin'nate**, imparipinnate.

**unguic'ular**, *unguicular'is*, (1) furnished with a claw; (2) the length of the middle finger-nail, about 15 mm. or a little over half an inch; **Unguic'ulus**, the length

of the nail of the little finger; **unguic'ulate**, *unguicula'tus*, contracted at the base into a claw; **un'guiform** (*forma*, shape), like the claw of a petal (Crozier); **Un'guis** (Lat., a nail or claw), a claw-like base of a petal, as in *Dianthus*; (2) the length of a finger-nail, roughly half an inch.

**un'gulate**, *ungula'tus* (Lat., having claws or hoofs), clawed.

**uni** (from *unus*, one), in composition, one, or single; **uniala'tus** (+ ALATUS), having one wing or decurrent ridge; **uniax'ial** (+ AXIAL), when a primary stem does not branch, though it may innovate, but ends in a flower; **unicalcara'tus** (+ CALCARATUS), one-spurred; **unicap'sular**, *unicapsula'ris* (+ CAPSULAR), with all the carpels united into one capsule; **unicar'inated** (*carina*, a keel), one-keeled (Crozier); **unicarpel'late** (*καρπός*, fruit), the fruit consisting of a single carpel; **U'nicell** (+ CELL), a plant which consists of a single cell; **unicel'lular**, *unicellular'is* (+ CELLULAR), formed of one cell; **unicol'orous**, *unic'olor* (*color*, colour), of one colour or uniform in tint; **unicos'tate** (+ COSTATE), having a single rib or costa, with a mid-rib; **unicotyle'donous** = MONOCOTYLEDONOUS.

**u'nicus** (Lat., one only), single or solitary.

**uniembryona'tus** (*uni* from *unus*, one, + EMBRYONATUS), having one embryo; **unifa'rious** (+ *farius*, as in *bifarius*), one-ranked (Crozier); **unif'erus** (*fero*, I bear), bearing once a year (S. F. Gray); **uniflor'ous**, *-rus* (*flos*, *floris*, a flower), one-flowered; **unifo'liate**, *unifolia'tus* (*folium*, a leaf), with one leaf; **unifo'liolate**, *unifoliola'tus*, with one leaflet only; **unifo'lius**, single-leafed; **unifora'tus** (*foratus*, pierced), opening by one aperture.

**uniform'is** (Lat., having one shape), used when the receptacle of Compositae bears only one kind of florets, as all ligulate or all tubular.

**unigem'mius** (*uni* = one, *gemma*, a bud), giving rise to a single bud; **unig'enus** (*gen*, the root of *gigno*, I produce), leafing annually (Henslow); **unij'ugate**, *unijuga'tus*, *unij'ugus* (*jugum*, a yoke), with one pair of leaflets; **unila'biate**, *unilabia'tus* (*labium*, a lip), one-lipped, as the corolla of *Acanthus*, the upper lip being obsolete, or the ligulate florets of Composites; **unilat'eral**, *unilatera'lis* (*latus*, a side), one-sided, either originating or, usually, all turned to one side; **uniloc'ular** (*loculus*, a small compartment), one-celled; **uniner'viate**, *uninervia'tus*, *uniner'vis*, *uniner'vius* (*nervus*, a nerve), one-veined or ribbed.

**uninterrup'ted**, continuous.

**uninu'cleate**, *uninuclea'tus* (*uni* = one, + NUCLEUS), having a single nucleus; **uniocula'tus** (*oculatus*, furnished with eyes), having only one vegetating point; **uniov'ulate** (+ OVULE), with a solitary ovule; **u'nipared** = **unip'arous** (*pario*, I bring forth), bearing one, as a cyme giving forth one axis at each branching; **unipet'alous** (+ PETALUM), (1) having a corolla of only one petal, the others not being developed; (2) erroneously used for GAMOPETALOUS; **uniprophylla'tus** (+ PROPHYLLA), with only one prophyllum (Buchenau); **unisep'tate** (+ SEPTATE), having only one septum, as in most teleutospores; **unise'rial**, *uniseria'lis*, **unise'riate**, *uniseria'tus* (*series*, a row), in one horizontal row or series; **unisex'ual**, *unisexua'lis*, *unisex'us* (*sexus*, sex), of one sex; stamens or pistils only, or their representatives; ~ **Hered'ity**, the property of transmitting the qualities of one parent only (Macfarlane); **uniso'rous** (+ SORUS), consisting of one sorus; **unistra'tose** (*stratum*, a layer), of one layer of cells; **Unitegmina'tae** (*tegmen*, a covering), Van Tieghem's term for

those Phanerogams which possess only one covering to their ovules; **u'nivalved**, *unival'vis*, **unival'vular** (*valva*, a door-leaf), of one valve or piece, dehiscing by one valve.

**univer'sal**, *universa'lis* (Lat., pertaining to the whole), general, as ~ **Involu'cre**, a general involucre; ~ **Um'bel**, a general or compound umbel.

**univesicula'ris** (*uni* = one + VESICULAR) = UNICELLULAR.

**uni'onized** (*un* = not, + ION), when the molecules are undivided (J. F. Clark); **Unli'ning** (+ line), the separation of parts originally united; chorisis; adj. **unlined'** (Lindley); **unor'ganised** (+ ORGAN), without structure or organs; ~ **Fer'ment** = ENZYME; **unsep'tate** + SEPTATE), applied to a plant which has not partitioning divisions, as plasmodia or certain unicellular Fungi and Algae; ~ **Fi'bres**, libriform cells; **unstrat'ified** (*stratum*, a layer), used of those Lichens which do not show distinct layers of hyphae and gonidia; **unsymmet'rical** (+ SYMMETRY), irregular.

**Uo'voli**, pl. of **Uo'volo** (Ital.), gnaurs of the olive-trees, used for propagation.

**ur'ceolar**, **ur'ceolate**, *urceola'tus* (*urceolaris*, relating to pitchers), pitcher-like, hollow and contracted at the mouth like an urn or pitcher; **Ur'ceolus** (Lat.), (1) a pitcher-shaped organ, as an ascidium; (2) the two confluent bracts of *Carex*, the utricle; (3) any flask-shaped anomalous organ.

**Uredino'sis** (*Uredo*, a blight, from *uro*, I burn), disease produced by "Rust" Fungi; **Ure'do**, a form genus, the hymenium producing uredospores exclusively; adj. **uredin'ial**, **uredin'eous**, **ure'dinous**; **Ure'do-conid'ium** ( + CONIDIUM) = UREDOSPORE; **Ure'do-fruit**, a group of Uredospores; **Uredogonid'ium** (+ GONIDIUM) = UREDOSPORE; **Ure'dospore** (σπορά, a seed), a spore formed by acrogenous abjunction from a sterigma, germinating immediately and producing a mycelium which bears other uredospores alone, or with teleutospores; **uredosporif'erous** (*fero*, I bear), bearing uredospores; **Ure'do-stage**, the summer stage of Uredineae, when uredospores only are produced.

**u'rens** (Lat., burning), stinging, as nettles.

**Urn**, *Ur'na* (Lat., a water-pot), (1) the capsule of a Moss; (2) the base of a pyxidium; **urn-shaped**, urceolate.

**urtica'ceous** (*urtica*, a nettle, + aceous), pertaining to the order Urticaceae, of which the nettle is the type.

**usta'lis** (Mod. Lat., from *ustus*, burnt), charred, brownish black; **Ust'erophyte** (φυτόν, a plant), Berkeley's name for one of the Ustilagineous Fungi; **ustula'tus** (Lat.), scorched, with the appearance of being charred; **Ustilago'sis**, disease caused by *Ustilago*, a genus of Fungi which produces "Smut" in corn, the contents of each cariopsis being replaced by a black powdery mass of spores; **ustilag'inous**, like *Ustilago*, or allied to it; **us'tulate**, *ustula'tus*, blackened, as though burned.

**U'terus** (Lat., the womb), the volva, or receptacle of the Phalloideae.

**U'tricle**, *Utric'ulus* (Lat., a small skin, or husk), (1) a small bladdery pericarp as in *Atriplex*; (2) a membranous sac surrounding the fruit proper in *Carex*; (3) any bladder-shaped appendage; (4) a synonym of a parenchymatous cell; *Utric'uli semina'les*, the spores of certain Fungi (Lindley); **utric'ular**, *utricula'ris*, **utric'ulate**, *utricula'tus*, **utric'uliform**, *utriculiform'is* (*forma*, shape), **utric'ulose**, *utriculo'sus*, having bladders, or bladder-like in appearance, inflated.

**u'triform**, *utriform'is* (*uter*, a skin bottle, *forma*, shape), bag-shaped

utricular ; **utrig'erus** (*gero*, I bear), bearing utricles.

**uva'rius** (*uva*, a bunch of grapes) ; **u'veous**, composed of rounded parts connected by a support, like a bunch of grapes ; **uvif'erus**, (*fero*, I bear), grape-bearing ; **uviform'is** (*forma*, shape), grape-like.

**vacci'nus** (Lat., relating to cows), the colour of a dun cow, bay.

**vacil'lans** (Lat., swaying), swinging freely, as the anthers of grasses.

**vac'uolar**, **vac'uolate** (dim. of *vacuus*, empty), possessing vacuoles ; ~ **-wall**, the condensed plasmatic boundary of a vacuole (De Vries) ; **Vac'uole**, a cavity in the protoplasm of cells which contains a watery liquid, the cell-sap ; **Vacuoliza'tion**, the formation of vacuoles ; **vac'uus** (Lat.), empty or void of the proper contents.

**vagiform'is** (*vagus*, inconstant, *forma*, shape), having no certain figure.

**Vagi'na** (Lat., a sheath), (1) a sheath, as of a leaf ; (2) a part which invests another ; **vag'inant**, *vagi'nans*, sheathing or wrapping round ; **vag'inate**, *vagina'tus*, sheathed ; **Vaginel'la**, (1) a small vagina ; (2) in the plural = RAMENTA (Lindley).

**vaginer'vis**, *vaginer'vius*, **vaginer'vose** (*vagus*, inconstant, *nervus*, a nerve), when the veins are arranged without apparent order.

**vaginif'erus** (*vagina*, a sheath, *fero*, I bear), furnished with a sheath ; **Vag'inule**, *Vagi'nula* (Lat., a little sheath), (1) a sheath surrounding the base of the seta in Bryophytes ; (2) ‡ a tubular floret in Compositae ; *vaginulif'eri Flor'es*, the tubular florets of an anthodium (Lindley).

**vague**, *va'gus* (Lat., unsettled), having no particular direction.

**Vail** = VEIL.

**Vallec'ula** or **Vallic'ula** (dim. of *vallis*, a valley), applied to the grooves in the intervals between the ridges in the fruit of Umbelliferae ; **vallec'ular**, pertaining to such grooves ; ~ **Canal'**, in *Equisetum*, an intercellular canal in the cortical parenchyma, opposite a groove on the surface (Goebel).

**valva'ceus**, ‡ (*valva*, the leaf of a door, + aceus), furnished with visible valves ; **valva'ris** (Lat.) = **val'vate**, *valva'tus* (Lat.), (1) opening by doors or valves, as in most dehiscent fruits and some anthers ; (2) when parts of a flower-bud meet exactly without overlapping ; **Valve**, *Val'va* (Lat., the leaf of a door), (1) a piece into which a capsule naturally separates at maturity ; (2) the segment of a calyx meeting in vernation without overlapping ; (3) in Diatoms, each half of the silicified membrane in side view ; (4) the lid of an ascidium (Crozier) ; (5) the flowering glume of grasses (Stapf) ; (6) a partially detached flap of an anther ; *Val'vae Se'minum* = COTYLEDONS ; **valved**, = valvate, hence three-valved, five-valved, etc. ; **val'var Plane**, that plane which passes through the apical and transapical axes of a Diatom (O. Mueller) ; **valvea'nus**, when a partition arises from the expansion of the inner substance of a valve ; **Val'velet**, **Val'vule** = **Val'vula**, (1) a diminutive valve ; (2) a flowering glume of grasses ; (3) a bract in Cyperaceae ; **val'vular** = valvate ; **valvula'tus** (Mod. Lat.) = articulate, jointed.

**Vanil'lin** (*Vanilla*, an orchid genus) is deposited in the cell-wall on lignification ; with coniferin it gives wood-reactions.

**Vapora'rium** (Lat., a steam-pipe), in botanic gardens, a stove or "Bark-stove."

**var'iable**, *varia'bilis* (Lat., changeable), not constant in appearance ; **var'ians** (Lat.), varying ; **Varia'tion** (*variatio*, a difference), (1) a slight variety ; (2) a tendency to vary or depart from the type.

**var'icose** (*varicosus*, full of dilated veins), abnormally enlarged in places, used of filamentous organs.

**var'iegated**, *variega'tus* (Lat., party coloured), irregularly coloured in patches, blotched.

**Vari'ety**, *Var'ietas* (Lat., difference), a sort or modification subordinate to species; ~ **Hy'brid**, so called, a cross between varieties of the same species.

**variifol'ius** (*varius*, variegated), possessing leaves of different forms.

**Vari'ola** (Mod. Lat., the pustule of small-pox), a pustular shield occurring on the thallus of the Lichen genus *Variolaria*; **var'iolate**, *variola'tus*, *variola'ris* (Mod. Lat.), marked as though pitted.

**var'ius** (Lat., variegated), liable to change or modification.

**Var'nish** = BLASTOCOLLA; **var'nished** = VERNICOSE (Crozier).

**Vas**, pl. **Va'sa** (Lat.), vessels, ducts. [Lindley (Glossary, p. 98) gives nineteen names for modifications of these.] *Va'sa exhalan'tia* = stomates; ~ *pro'pria*, sieve-tubes or thin-walled tubular cells of the phloëm.

**vas'cular**, *vascular'is* (*vasculum*, a small vessel), relating to or furnished with vessels; ~ **Bun'dle**, a strand of specialized tissue; ~ **Bun'dle-sheath**, the enveloping cylinder of closely united parenchyma; ~ **Cyl'inder**, the central cord of vascular tissue; ~ **Plants**, **Vascula'res**, those which possess vessels, as Phanerogams and Filicales; ~ **Sys'tem**, the interior parts in which the vessels occur; ~ **Tis'sue**, consists chiefly of vessels, in contradistinction to cellular tissue; **vasculif'erous** (*fero*, I bear), producing vessels; **vas'culose**, *vasculo'sus*, vascular; **Vasc'ulose**, a component of the vegetable skeleton of the cellulose group; **Vas'culum** (1) = ASCIDIUM; (2) a collecting-box for botanic specimens.

**vase-shaped**, "shaped like a flower-pot" (Lindley).

**Vasiduc'tus** (*vas*, *vasis*, a vessel, *ductus*, led) = RAPHE; **va'siform**, *vasiform'is* (*forma*, shape), in the shape of a vessel or duct; ~ **El'ements**, ~ **Tis'sue**, ducts or tubes with spiral markings; ~ **Wood-cell** = TRACHEID; **vasula'ris**, = vase-shaped.

**Vaucher'ia-gall**, an hypertrophied formation on *Vaucheria*, due to some animal attack, as of Rotifers.

**vault'ed**, fornicate.

**veg'etable** (*vegetabilis*, animating), belonging to or consisting of plants; [**Veg'etable**, in a restricted sense is a kitchen garden plant, anything cultivated for culinary purposes]; ~ **Ac'ids**, the most frequent and abundant are **cit'ric**, **ma'lic**, **oxal'ic**, and **tartar'ic**; ~ **Al'bumen**, a substance resembling animal albumen.—NOTE, not to be confounded with the ALBUMEN of seeds; ~ **Anat'omy**, the structure of plants; ~ **Ca'sein**, the same as LEGUMIN; *cf.* PLANT-CASEIN; ~ **Cell**, see CELL; ~ **Fi'brin**, = GLUTEN; ~ **Glob'ulin**, see GLOBULIN; ~ **I'vory**, the seed of *Phytelephas macrocarpa*, Ruiz & Pav.; ~ **Mu'cus**, **Mu'cilage**, see MUCILAGE; ~ **Nosol'ogy**, the classification and diagnosis of plant-diseases; ~ **Parch'ment**, paper after treatment with acids; ~ **Patho-l'ogy**, the science of the diseases of plants, and remedial treatment; ~ **Taxon'omy**, the classification of plants in systematic order; ~ **Wax**, a substance resembling animal wax, occurring as BLOOM on the surface, or in bulk in certain fruits; **veg'etal**, (1) having power to produce growth; (2) an abbreviation of "vegetable"; **veg'etate**, to sprout or grow as plants; **Vegeta'tion**, (1) the process of plant-growth; (2) plants in general; **veg'etative**, growing or causing to grow; ~ **Apog'amy**, = APOGAMY; ~ **Cell**, (1) the larger of the two cells in a pollen granule, which causes the growth of the pollen-

tube ; (2) in *Selaginella*, a portion of the apical end of the microspore cut off by a septum on germination ; ~ **Cone**, the apex of the shoot, a conical protuberance ; ~ **Nu'cleus**, any pollen-tube nucleus which does not take an active part in fertilization ; ~ **Or'gans**, those concerned with the growth of the plant, not the reproduction ; ~ **prop'agative Cells**, in German "Brutzellen" = GONIDIA ; ~ **Reproduc'tion**, asexual increase, as by detached buds, gemmae, bulbils, etc. ; **veg'etive**, having the nature of plants.

**Vehic'ulum** (Lat., a conveyance), Necker's term for the stigmatic secretion.

**Veil**, = (1) VELUM ; (2) CALYPTRA of Mosses.

**Vein** (as distinct from a NERVE), a strand of vascular tissue in a flat organ, as a leaf ; **cos'tal** ~, or **pri'mary** ~, such as spring from the midrib ; **exter'nal** ~, a vein close to the margin ; **veined**, furnished with or traversed by fibro-vascular bundles, especially if divided or reticulated ; **Vein'ing**, the general arrangement of the veins ; **vein'less**, destitute of veins ; **Vein'let**, a small vein, the ultimate division of a vein ; **Vein'ulet**, a branch of a veinlet (Crozier).

**Vela'men** (Lat., a covering), or ~ **Radi'cum**, a parchment-like sheath or layer of spiral-coated air-cells on the roots of some tropical epiphytic Orchids and Aroids ; **velamina'ris**, when an anther dehisces by rolling up one side of a cell from base to apex ; **ve'late**, *vela'tus* (Lat.), veiled.

**Vel'lus** (Lat., a fleece), the stipe of some Fungi.

**Ve'lum** (Lat., an awning), (1) a special envelope in Agarics within which the growth of the sporophore takes place ; (2) by Persoon applied to the CORTINA ; (3) the membranous indusium in *Isoëtes* (Crozier) ; ~ **partia'le**, marginal veil ; ~ **universa'le** = VOLVA.

**Velu'men** (Lat., a fleece), close, short, soft hairs.

**velu'tinous**, *velu'tinus*, *velutino'sus* (Mod. Lat.), velvety, due to a coating of fine soft hairs ; **vel'vety**, an equivalent of the same.

**Ve'na** (Lat., a vein), a vein ; **Ve'nae exter'nae**, white veins seen in some Gasteromycetes and Tuberaceae in sections of the sporophore, produced by air tissue in the sporiferous chambers ; ~ **inter'nae**, ~ **lymphat'icae**, dark-coloured veins, in the same group of Fungi, denoting the walls of the sporiferous chambers, but destitute of air ; **Vena'tion**, the mode of veining.

**venena'tus** (Lat.), poisonous, venomous.

**venenif'erous** (*venenifer*, containing poison), bearing poison.

**ven'enose**, *veneno'sus* (Lat.), very poisonous.

**ve'nose**, *veno'sus* (Lat., veiny), having veins ; **veno'so-nervo'sus** ‡ when the primary veins branch and unite irregularly.

**Ven'ter** (Lat., the belly), (1) the expanded basal portion of an archegonium in which the oosphere is formed ; (2) by T. J. Parker applied to the OVARY.

**ventilato'rius** (*ventilator*, a winnower), flabellate, fan-shaped.

**ven'tral**, *ventra'lis* (Lat., pertaining to the belly), (1) the anterior or inner face of a carpel, opposed to dorsal ; (2) relating to the VENTER ; ~ **Canal'-cell**, a small cell in the archegonium cut off from the apex of the mother-cell of the oosphere next the neck ; ~ **Su'ture**, the ventral seam or line of dehiscence in a carpel ; **ven'tricose**, *ventrico'sus*, **ven'tricous**, swelling or inflated on one side, as the corolla of some Labiates and Scrophularineae ; **ventric'ulose**, *ventriculo'sus* (Lat., pertaining to the belly), slightly ventricose.

**ventricum'bent** (*venter*, belly, *cumbens*, lying down), face downward, prone (Crozier).

**Ve'nulae**, pl. of **Ve'nula** (Lat., a small

vein), veinlets; ~ **commu'nes**, ‡ veinlets which proceed from anastomoses of the ~ **pro'priae**, ‡ those which first leave the costal or primary veins; **Ve'nule**, employed by J. Smith for veins of secondary importance; **ve'nulose**, *venulo'sus*, profusely-veined; **venulo'so-hinoi'deus**, having equally curved parallel veins originating in the midrib and not losing themselves in the passage; ~ **nervo'sus**, with straight parallel veins connected by cross-veinlets.

**Ver-spe'cies**, Syme's name for a true species, neither super-, nor sub-species; the epithet is derived from *verus*.

**Vera'trine**, an alkaloid derived from *Veratrum*.

**Ver'digris** (Fr., Vert-de-gris), the sea-green "rust" of brass; ~ **Green**, the bluish-green colour of the same.

**vermic'ular**, *vermicular'is*, **vermic'ulate**, *vermicula'tus*, *vermiculus*, a little worm), worm-shaped, thickened and bent in places, as the root of *Polygonum Bistorta*, Linn.

**ver'miform** (*vermis*, a worm, *forma*, shape), worm-shaped; ~ **Bod'y** = SCOLECITE.

**Vermil'ion** (Old Fr., Vermillon, the Kermes insect) ~ **col'oured**, scarlet, brilliant red approaching orange.

**ver'nal**, *verna'lis*, *ver'nus* (Lat., pertaining to spring), appearing in spring; **Verna'tion**, *Verna'tio* (Lat., casting off a slough), the order of unfolding from leaf-buds, prefoliation.

**ver'nicose**, *vernico'sus* (Mod. Lat., varnished), shiny, as though varnished.

**Verru'ca** (Lat., a wart), (1) a wart or elevation sometimes of a glandular nature; (2) a sessile apothecium, as in *Verrucaria*; (3) the perithecium of some Fungi.

**verruca'rioid**, resembling *Verrucaria* as to the verrucae or apothecia.

**ver'rucose**, *verruco'sus* (Lat., full of warts); **ver'rucous**, warty.

**verru'ciform** (*verruca*, a wart, *forma*, sbape), wart-shaped.

**verru'culose**, *verruculo'sus* (*verrucula*, a small wart), very warty, much covered with warts.

**ver'satile**, *versat'ilis* (Lat., moveable), turning freely on its support, as many anthers on their filaments.

**versic'olor** (Lat., of changeable colour), changing colour, or one colour passing into another.

**ver'siform** (*versiformis*, changing shape), altering in shape as it ages.

**versipal'mus** (*versus*, turned, *palma*, a palm), a palmate arrangement, the divisions not all in the same plane.

**ver'tebrate** (*vertebratus*, jointed), contracted at intervals, like the backbone of animals.

**Ver'tex** (Lat., that which revolves about itself), (1) the apex of an organ; (2) ‡ the pileus of Agarics; **ver'tical**, *vertica'lis*, (1) perpendicular to the horizon; or (2) to the support, usually longitudinal; ~ **An'ther**, an innate anther; ~ **Chor'isis**, transverse chorisis; ~ **Leaves**, those which stand erect like *Iris* leaves, with no obviously dorsal or ventral surfaces; ~ **Sys'tem**, the fibro-vascular system (Crozier); **ver'tically compres'sed** = DEPRESSED (Crozier).

**Ver'ticil**, *Verticil'lus* (Lat., the whirl of a spindle), a whorl, or circular arrangement of similar parts round an axis; **Verticil'lus spu'rius**, = VERTICILLASTER; **Verticillas'ter** (*-aster*, a suffix = small), a false whorl, composed of a pair of opposed cymes, as in Labiates; **verticillas'trate**, possessing false whorls; **vertic'illate**, *verticilla'tus*, whorled; **verticilliflor'us** (*flos*, *floris*, a flower), when whorls have a spicate arrangement.

**verucula'tus** (Lat., furnished with a small pike), cylindric and somewhat pointed.

**vesicato'rius** (*vesica*, a blister), blistering.

**Ve'sicle**, *Vesi'cula* (Lat., a little bladder), (1) a small bladder or

cavity ; (2) Grew's term for CELL ; **multinu'cleated ~**, peculiar bodies found in the hyphae of the endophytic Fungus of the prothallus of *Lycopodium clavatum*, Linn. (Lang) ; **Vesi'cula Am'nios, ~ Colliquamen'ti**, the embryo-sac (Lindley) ; **~ sporoph'ora**, the sporophore of a Fungus ; **vesiculaeform'is** (*forma*, shape), bladder-shaped ; **vesic'ular**, *vesicular'is*, *vesicula'tus*, composed of vessels ; **~ Ves'sels**, laticiferous cells ; **vesic'ulose**, *vesiculo'sus*, **vesic'ulous**, as if composed of little bladders.

**ves'pertine**, *vesperti'nus* (Lat., pertaining to the evening), appearing or expanding in the evening.

**Ves'sel**, a duct or articulated tube rendered continuous by the more or less complete absorption of the intervening transverse walls.

**Ves'tibule** (*vestibulum*, a fore court), a chamber above the stoma formed by the depression of the guard-cells, and growth of the cells round them, as in *Cycas*.

**Ves'tige** (*vestigium*, a footstep), the remaining trace of an organ which was fully developed in some ancestral form ; adj. **vestig'ial**.

**Vex'il** (Crozier) = VEXILLUM ; **vex'illar**, *vexillar'is* (*vexillum*, a standard), pertaining to the VEXILLUM ; **vexil'lary**, (1) a form of inflorescence in which the vexillum is folded over the other petals ; (2) employed by Plateau, to denote the giving an attractive signal insects ; **~ Aestiva'tion**, peculiar to papilionaceous flowers ; **vexil'late**, *vexilla'tus*, bearing a standard or vexillum ; **Vexil'lum**, the standard or large posterior petal of a papilionaceous flower.

**vi'able** (Fr., viable, likely to live), used of seed which is capable of germinating ; **Viabil'ity**, the possibility of growth.

**viat'ical** (*viaticus*, pertaining to a road), applied to those plants which grow by the roadside or path.

**vi'bratile** (Fr., vibratile), capable of vibration, motion to and fro.

**Vib'rio**, pl. **Vib'riones** (*vibro*, I quiver), minute thread-like bacteria ; **vib'rioid** (*εἶδος*, resemblance), like a vibrio ; **~ Bod'ies**, special structures, slender, cylindric, and of sharply definite outlines in the superficial layer of cytoplasm of some Algae (Swingle) ; **Vib'rogen**, (*gen.* root of *gigno*, I produce), subepidermal tissue of thin walled parenchymatous cells with a large amount of chlorophyll, which seems to play an important part in the movements of tendrils (Penhallow).

**Vibris'sae**, pl. (Lat., hairs of the nostrils), the sensitive hairs of *Dionaea* (Boulger).

**vica'rious** (*vicarius*, substituted), supplying the place or function of some other organ (Crozier).

**vice'ni** (Lat., twenty each), in twenties.

**Vic'inin** (*vicia*, a vetch) a principle from *Lathyrus sativus*, Linn.

**Vigil'ia** (Lat., keeping watch) or **Vigil'iae Flor'um**, periods during which certain plants open and close their flowers.

**Vil'li**, pl. of **Vil'lus** (Lat., a shaggy hair), long weak hairs ; **villif'erus** (*fero*, I bear), bearing villi ; **vil'liform** (*forma*, shape), resembling villi (Crozier) ; **vil'lose**, *villo'sus*, **vil'lous**, bearing villi ; **Villos'ity**, shagginess, a coating of long weak hairs.

**Vi'men** (Lat., a switch), a long flexible shoot ; **vi'menal**, *vimena'lis*, consisting of twigs ; **vimin'eous**, *-neus*, bearing long and flexible twigs.

**vina'ceous**, *vina'ceus* (*vinum*, wine, + aceus), wine-colour, purplish red.

**Vine**, (1) the plant which bears grapes, *Vitis vinifera*, Linn. ; (2) in the United States applied to any trailing or climbing stem, or runner ; **vinea'lis** (Lat.), growing in vineyards.

**Vin'egar-plant**, or mother-of-vinegar, *Mycoderma Aceti*, Desmaz.

**vinic'olor** (*vinum*, wine, *color*, colour),

the colour of wine, dark or purple red; **vino'sus** (Lat.), in botany means the same.

**viola'ceous**, *-ceus* (*Viola*, + aceous), violet-coloured, ianthinus; **violas'cens** (+ascens), becoming violet; **vi'olet**, *viol'eus*, the colour of violets, a cold purple; **Vi'oline**, a poisonous principle existing in *Viola odorata*, Linn.

**virel'lus** (dim. of *virens*), somewhat green or greenish.

**vir'ent**, *vir'ens* (Lat., green), (1) green in colour; (2) evergreen; **vires'cent**, *vires'cens*, turning green; **Vires'cence**, the development of chlorophyll in place of the normal colouring; *cf.* FRONDESCENCE.

**vir'gate**, *virga'tus* (Lat., made of twigs), wand-shaped, twiggy.

**virgin'eus** (Lat., maidenly), (1) the purest white; (2) having arrived at the flowering period (Endlicher, fide Lindley).

**vir'gulate**, "diminutive of VIRGATE, shaped like a little twig or wand" (Crozier), but *virgulatus* also means striped.

**Virgul'tum** (Lat., a copse), a vigorous twig or shoot.

**vir'idans** (Mod. Lat.), **virides'cent**, *virides'cens*, becoming green; **Viridi'na** = CHLOROPHYLL; **vir'idis** (Lat.), green; **virid'ulus**, greenish; **Vir'or** (Lat.), greenness, verdure.

**viro'sus** (Lat., fetid), "venomous" (A. Gray); having an unpleasant smell.

**vis'cid**, *vis'cidus* (Lat., clammy), sticky from a tenacious coating or secretion; ~ **Disk**, the retinaculum of an Orchid.

**Vis'cin** (*viscum*, birdlime), (1) a substance intermediate between resin and caoutchouc (Weinling); (2) the sticky substance forming threads uniting pollen-grains (Kerner); **vis'cous**, *visco'sus* (Lat., sticky), glutinous, clammy.

**Vi'talist** (*vitalis*, pertaining to life), **The'ory**, Pasteur's theory of fermentation as an effect, with vegetation as a cause; **Vital'ity**, in seeds the period during which the seeds retain their power of germination, varying according to the species.

**Vitel'lin**, *vitelli'nus* (*vitellus*, the yolk of an egg), the colour of the yolk of an egg; **veg'etable Vitel'lin**, Weyl's term for a reserve proteid found as crystals in potato-tubers; **Vitel'lus**, (1) an old name for peculiar albumen which in some cases is deposited within the embryo-sac; *cf.* SCUTELLUM (2); (2) an oily substance adhering to the spores of *Lycopodium*.

**vitic'olous** (*Vitis*, a vine, *colo*, I inhabit), living on or within the vine; **Vitic'ola**, a parasite of the vine; Henslow prints the word *viti'colus*.

**Vitic'ula** (Lat., a vine tendril), also printed **Vitic'ulus** = SURCULUS; **vitic'ulose**, *viticulo'sus*, sarmentose, producing viticulae.

**vit'reous**, *vit'reus* (Lat., of glass), transparent, hyaline; formerly used for the light green of glass; **vit'ricole** (*colo*, I inhabit), applied to Lichens which are found growing on glass bottles, etc.; **vit'ricus**, "having a glassy appearance" (Lindley).

**Vit'ta**, pl. **Vit'tae** (Lat., a fillet), the aromatic oil tubes of the pericarp of most Umbelliferae; ~ of Diatoms, are longitudinal ribs; **vit'tate**, *vitta'tus*, bearing vittae, longitudinally striped; **Vit'tin**, a substance found in the more watery vittae of Umbelliferae.

**vivip'arous** (*viviparus*, producing young alive), germinating or sprouting from seed or bud, while attached to the parent plant; ~ **Germina'tion** = **Vivip'ary**, the phenomenon in question.

**void**, empty.

**vol'uble**, **volu'bile**, *volu'bilis* (Lat., twining), twining round a support.

**volute'**, *volu'tus* (Lat., a rolling), rolled up in any way; **Volu'tion**, a spiral turn or wreath.

**Vol'va** (Lat., a wrapper), a covering or external wrapper, especially the

sac enclosing the sporophore of Agarics, ruptured at its apex by the growth of the unfolding pileus.

**volvocina'ceous**, of the nature of the genus *Volvox*.

**Vul'va** [from *Volva*] **Vegetabil'ium**, a Linnean name for the STIGMA; **vul'viform** (*forma*, shape), like a cleft with projecting edges.

**Wart**, a hard or firm excrescence; **wart'y**, covered with warts or verrucae.

**Wa'ter Cul'ture**, growth of plants in compound solutions of salts; ~ **Gland**, a group of cells beneath a water-pore, which help to excrete water; ~ **Leaf**, in *Salvinia*, a submersed and finely divided leaf, which simulates a root; ~ **Par'asite**, when the host serves only as a root, and provides absorption, conduction and mechanical support, as in Mistleto, whose haustoria contain no sieve-tubes; ~ **Plants**, those growing in water, immersed wholly or in part; ~ **Pore**, ~ **Stom'a**, a stoma devoid of guard-cells, discharging water; ~ **Stor'ing-tis'sue**, a form of water-tissue adapted for storing water, especially in dry climates; ~ **Tis'sue**, parenchyma filled with clear sap and some mucilage.

**waved**, **wa'vy**, undulate or sinuate.

**Wax**, **veg'etable**, a fatty body occurring as a waste product, either superficially as BLOOM on leaves, or in quantity in fruits and stems as in *Myrica cerifera*, Linn., and *Ceroxylon Klopstockia*, Mart.; **wax'y**, resembling bees' wax in consistence or appearance; ~ **Coat'ing**, a thin epidermal layer of rods or grains, forming a glaucous bloom on fruits and leaves; ~ **yel'low**, an impure yellow, *cf.* cereus, melleus.

**wedge-form**, ~ **-shape**, cuneate.

**Weed**, any useless or troublesome plant which occurs without intentional cultivation.

**Weel**, a term borrowed from a wicker eel-trap, for an arrangement of hairs which keeps out unbidden insect guests from flowers (Ogle).

**Weep'ing**, excessive loss of sap from wounds, as in the vine or birch; bleeding; adj. = pendulous in habit.

**Welt**, a raised stripe on fruit such as the lemon (Crozier); **welt'ed**, is given by Crozier as "flaccid, drooping"; it is probably an error for WILTED.

**Wendungszel'len** (Ger.), a disc-shaped group of hyaline cells (or a single cell) at the base of the oosphere in Characeae.

**Wheat-ear** Carnation, an abnormal increase or pleiotaxy of bracts.

**wheel-shaped**, rotate.

**whip-shaped**, flagelliform.

**Whirl** (S. F. Gray) = WHORL.

**white**, when positive colour is absent; *albus* is white generally, *niveus*, as pure as snow, *candidus*, radiantly white, etc.; ~ **Chlor'ophyll**, Gautier's term for chlorophyll which is rich in hydrogen and colourless; the normal green type is stated to be poorer in that gas; **whi'tened**, dealbate, with a darker ground tint; **whi'tish**, albidus, albulus, etc.

**Whorl**, pr. hwurl, the arrangement of organs in a circle round an axis; **false-** ~, **spu'rious** ~, = VERTICILLASTER; **whorled**, pr. hwurld, disposed in one or more whorls.

**Wick'er-hairs**, an awkward and inexpressive rendering of the German "Reusenhaare"; *cf.* TRAP-HAIRS; WEEL.

**wild**, spontaneous, growing without cultivation or introduction.

**Wild'ering** (Crozier) = **Wi'lding**, (1) any wild plant; (2) an escape from cultivation.

**wilt'ed**, become flaccid, the opposite of turgid; **wilt'ing**, drooping, having lost the quality of freshness.

**Wing**, (1) = ALA, any membranous expansion attached to an organ; (2) a lateral petal of a papilionaceous corolla; ~ **Bract**, the attached subtending bract of *Tilia*; **winged**, alate.

**Win'ter-an'nual**, a plant which ger-

minates in autumn, and living through the winter, fruits and dies; *cf.* BIENNIAL ; ~ **-kil'ling**, destruction by exposure to variations of weather and temperature ; ~ **-spore**, a resting spore.

**Witch'es' Brooms**, a disease shown by tufts of shoots, due to attack by Fungi or mites ; in German "Hexenbesen" ; **Steppe - wit'ches**, or **Wind- ~**, ball-like felted masses of plants in steppe regions, which have become detached from their roots and are blown about by the wind.

**with'ering**, marcescent.

**With'y**, a willow twig, a pliable wand.

**Woad**, = ISATIN, the blue colouring matter of *Isatis tinctoria*, Linn.

**Wood**, the lignified portion of plants, included within the cambium layer, but exclusive of the pith ; the xylem elements of the united vascular bundles ; ~ **Ball**, = SPHEROBLAST ; ~ **Cells**, are lengthened and thickened, combined into threads, fascicles, or bundles, forming prosenchyma ; ~ **El'ements**, the fibres which make up the xylem ; ~ **Fi'bre**, the fibro-vascular tissue ; ~ **Gum**, contained in the wood of Dicotyledons, said to consist chiefly of xylan ; ~ **Parench'yma**, tissue of thick-walled cells :—**Au'tumn ~**, the outer portion of each annual ring of growth, having smaller ducts and wood cells, with walls much thickened ; **Spring ~**, the inner portion of each annual increment, consisting of larger, thinner-walled cells and ducts ; **wood'y**, approaching the nature of wood, ligneous ; ~ **-Fi'bre**, wood-tissue ; ~ **Rings**, the annulations seen on cross section, which usually denote one year's growth ; ~ **Tis'sue**, xylem ; ~ **Wedg'es**, Williamson's expression for the fibro-vascular bundles in *Calamites* (W. R. M'Nab).

**Wool**, long, dense, curled hairs (Crozier) ; **wool'ly**, lanate, tomentose, clothed with long and tortuous or matted hairs.

**worm-shaped**, more or less cylindric, and contorted.

**Wor'onin's Hy'pha**, a coiled hypha in some forms of Ascomycetes, occurring in the centre of the future sporocarp, and probably homologous with an archicarp.

**Wort**, pr. wurt, (1) a plant, especially a cabbage ; (2) the sweet infusion of malt, or unfermented beer.

**Wound**, any injury caused by abrasion or incision in the cortical layers of a tree ; ~ **Cam'bium**, a layer of phellogen resulting from the tangential division of epidermal cells, or from cortical cells beneath the epidermis ; ~ **Cork**, the non-conducting tissue which shuts off fungus-diseased portions of bast from the sound parts ; ~ **Gum**, a substance abundantly secreted in the vessels by the surrounding starch-cells, closing the wound-cavities (Temme) ; ~ **Par'asite**, a Fungus which attacks the surface of a wound, and so effects an entrance into the tissues of the host ; ~ **Rot**, various forms of decay not accounted for by parasitic Fungi ; ~ **Wood**, abnormal growth, distinguished by its short cells and absence or scarcity of vessels (De Vries).

**Wrap'per**, = VOLVA.

**Wrin'kle**, a fold or crease ; **wrin'kled**, rugose, creased.

**Xan'theïn** (*ξανθός*, yellow), a yellow-colouring of plants, the same as ANTHOCHLORIN, *cf.* XANTHINE ; **xanthel'lus**, somewhat yellow ; **xan'thic**, tending to yellow ; ~ **Flow'ers**, those which display yellow in their tints, opposed to cyanic flowers ; **Xan'thin**, (1) a pure yellow substance from chlorophyll (Kraus) ; (2) a solid insoluble pigment ; also **Xan'thine**, (1) found in seedlings of *Cicer arietinum*, Linn. ; (2) a mixture of colouring matters described by Kuhlmann as a single body (Green) ; **Xantholeu'cite** (+ LEUCITE), a leucite of an

etiolated plant (Van Tieghem); **Xan'thophyll** (*φύλλον*, a leaf), a constituent of chlorophyll, a yellow colouring matter insoluble in water; **Xanthophyl'lidrine**, a yellow crystallizable pigment, like the last, but soluble in water; **Xanthopi'crine** (*πικρὸς*, bitter), a yellow bitter principle from the bark of *Zanthoxylon caribbaeum*, Lam.; **Xanthorham'nin**, the yellow colouring matter of the ripe fruits of *Rhamnus*; **Xanthotra'metin** (+ TRAMA), a colour resin in Fungi, as *Polyporus cinnabarinus*, Fr.

**Xen'ia** (*ξένιος*, belonging to a guest), Focke's term for the direct influence of foreign pollen on the parts of the mother-plant (Stift).

**Xenocar'py** (*ξένος*, a stranger, *καρπὸς*, fruit), producing fruit as the result of xenogamy; **Xenochro'ma** (*χρῶμα*, colour), Focke's term for the effect of foreign pollen producing a change in the colour of the fruit; **Xenog'amy** (*γάμος*, marriage), cross-fertilization between sexual elements borne by different individuals (Loew); *cf.* GEITONOGAMY; **Xenoplas'ma** (*πλάσμα*, moulded), employed by Focke to denote change in shape of fruit produced by the action of foreign pollen.

**xerampel'inus** (Lat.), the dull red or purple of dead vine leaves.

**xerochas'tic** (*ξηρὸς*, dry, *χασμάω*, I gape), applied by Ascherson to plants whose fruits burst by desiccation and their seeds or spores are scattered; **Xe'rophile** (*φιλέω*, I love), a plant which grows in a dry situation; **xeroph'ilous**, growing in arid places; **Xe'rophyte** (*φυτὸν*, a plant), a plant which can subsist with a small amount of moisture, as a desert plant; adj. **xerophyt'ic**; **Xerot'ropism** (*τροπὴ*, a turning), the tendency of plants or parts thereof to alter their position to protect themselves from desiccation (Borzi); adj. **xerotrop'ic**.

**xiph'ioid** (*ξίφος*, a sword, *εἶδος*, resemblance), sword-like, ensiform; **xiphophyl'lous**, *-lus* (*φύλλον*, a leaf), with ensiform leaves, as *Iris*.

**Xy'lan** (*ξύλον*, wood), the chief constituent of WOOD-GUM; **Xy'lem**, the wood-elements of a vascular bundle, possessing tracheal tissue; ~ **Bridges**, connections surrounding phloëm-islands; ~ **I'slands**, detached strands of xylem in certain species of *Thunbergia* (Roulet); ~ **Parench'yma**, oblong cells which retain their protoplasm, with thick and lignified walls, occurring in longitudinal bands; ~ **Plate**, ~ **Ray**, a radial plate of xylem between two medullary rays; *cf.* PHLOËM RAY; **xyl'inus**, woody, pertaining to wood; **xylocar'pous**, *-pus* (*καρπὸς*, fruit), the fruit becoming hard and woody; **Xyl'ochrome** (*χρῶμα*, colour), (1) wood-dyes, chiefly tannins; (2) the dark coloured contents of the vessels of the duramen (Hartig); **Xylo'dia**, **Xylo'dium** (*εἶδος*, like), (1) the woody fruit of *Anacardium*; *cf.* XYLOPODIUM; (2) an old name for ACHENE; **Xyl'ogen** (*γένος*, offspring), used by Sachs for wood-substance; **Xylo'ma**, a sclerotioid body which does not produce branched sporophores, but sporogenous structures within itself; **Xylomy'ces** (*μύκης*, a mushroom), a Fungus which grows on wood or bark; **Xy'lonite**, cellulose manufactured in plastic masses; **xyloph'ilous** (*φίλεω*, I love), applied to Fungi which attack woody tissue; **Xylopod'ium** (*πούς*, *ποδὸς*, a foot), a fruit like a nucule, but wanting a cupule, and borne upon a fleshy support, as in *Anacardium*; **Xy'lose**, a pentose occurring in wood; **Xylostro'ma**, the leathery felted mycelium of certain Fungi which destroy timber; **Xylot'omy** (*τομὸς*, a cut), the anatomy of wood, and woody tissues; adj. **xylotom'ic**.

**year'ly**, annual, of a year's growth.

**Yeast**, pr. yeest, the minute unicellular organisms which effect alcoholic fermentation in sugary liquids ; ~ **Bud'ding**, giving rise to similar yeast-gonidia ; ~ **Fun'gus**, *Saccharomyces Cerevisiae*, J. Meyer; sometimes termed SPROUTING FUNGUS : — **Bot'tom** ~, **Low** ~, that which forms at the bottom of the vats, "Unterhefe" of the Germans ; **Up'per** ~, or Barm, that which floats on the surface, the German "Oberhefe" ; **wild** ~, some undesired form, which gives a bitter taste to the wort without fermentation.

**Ypomne'ma** (*ὑπὸ*, under, *μένω*, I remain), Necker's term for an inferior calyx.

**Zan'thophyll** = XANTHOPHYLL.

**Ze'in**, a proteid existing in maize, *Zea Mays*, Linn.

**Zenot'ropism** (zenith, *τροπή*, a twining), negative geotropism (Fayod) ; adj. **zenotrop'ic.**

**zeori'nus**, resembling the Lichen genus *Zeora*, Fr.

**Zi'mome** = ZYMOME.

**zig'zag**, having short bends or angles from side to side.

**Zoadu'la**, pl. **Zoadu'lae** (Fr. zoadule), Gaillon's term for ZOOSPORE.

**zodioph'ilous** (*ζῴδιον*, a little animal, *φιλέω*, I love) = ZOIDIOPHILOUS.

**zoidiog'amus** (*ζῷον*, an animal, *γάμος*, marriage), Engler and Prantl's term when an archegoniate plant has ciliated antherozoids ; **zoidioph'ilous** (*φιλέω*, I love), pollinated by the agency of animals ; **Zoidioph'ilae**, plants which are so fertilized.

**zo'nal** (*ζώνη*, a belt or girdle), applied to those "plant-formations" by C. Macmillan, which exhibit well marked radial symmetry as though spreading from one centre ; **zo'nate**, marked circularly, as the leaves of *Pelargonium zonale*, L'Hérit. ; ~ **Tetragonid'ia**, those formed by transverse divisions ; *cf.* CRUCIATE ; **Zone**, the connection between two valves of a Diatom ; the hoop or girdle ; ~ **of Distribu'tion**, in Great Britain, altitudes of plant growth as defined by H. C. Watson ; divided into **in'fer-**, **mid-**, and **su'per-** ; *cf.* REGION ; **Zona'tion**, the formation of a hollow sphere by the nucleus in metaphasis, with a film of granulated protoplasm which marks the boundary of the compound oosphere in *Cystopus Bliti*, De Bary (F. L. Stevens).

**Zo'ocarp** (*ζῷον*, an animal, *καρπὸς*, fruit) = ZOOSPORE ; **Zoocecid'ia** (*κηκίς*, a gall), plant-galls produced by animals (Tubeuf) ; **Zoocoe'nocyte** (+ COENOCYTE), a free-swimming coenocyte ; **Zo'ocyst** (*κύστις*, a bag), a cyst, which, in Monadineae, gives rise to ciliated or amoeboid zoogonidia ; **Zoodomat'ia**, (*δωμάτιον*, a small house), shelters formed by a plant for those animals which are of benefit to it ; **Zoog'amae** (*γάμος*, marriage), plants with motile reproductive elements, Cryptogams ; **Zo'ogamete** (*γαμέτης*, a spouse), = PLANOGAMETE ; **Zoog'amy**, applied to plants having motile sexual elements, as most Cryptogams ; **Zoogloe'a** (*γλοιὸς*, viscous, clammy), a stage of Schizomycetes when they are embedded in a jelly-like substance ; **Zoogonan'gia** (*γόνος*, offspring, *ἀγγεῖον*, a vessel), certain cells in *Ctenocladus*, which enlarge, become pear-shaped, and hibernate, afterwards producing planogametes (Borzì) ; **Zoogonidan'gium** (+ GONIDANGIUM), employed by W. West for an organ in certain Algae which produces zoospores ; **Zoogonid'ium** (+ GONIDIUM) = ZOOSPORE ; **Zo'oid** (*εἶδος*, resemblance), a motile spore or gamete (Hazen) ; **zooidiog'amous** (*γάμος*, marriage), used of gametes when at least one is actively motile, flagellate, ciliate, or amoeboid (Hartog) ; **Zoomorph'osis** (*μόρφωσις*, a shaping), changes produced in plants from the action of animals ; used

by Appel for galls when caused by animal parasites; **Zo'on**, an affix or suffix, in botany denoting antherozoid; **zooph'ilous** (*φιλέω*, I love), pollinated by the agency of animals; **Zo'osphere** (*σφαῖρα*, a sphere), a biciliated swarm-cell of Algae, afterwards an oosphere; **Zo'osperm**, *Zoosper'ma* (*σπέρμα*, a seed), pl. **Zoosper'mata**, = ZOOSPORE; **Zoosporan'gium** (+ SPORANGIUM), a sporangium which produces zoospores or planogametes; adj. **zoosporan'gial**; **Zo'ospore** (*σπορά*, a seed), a free-moving spore, an asexual reproductive cell with cilia, sometimes a planogamete; adj. **zoospor'ous**; **Zoozy'gosphere** (*ζυγός*, a yoke, *σφαῖρα*, a sphere) = PLANOGAMETE; **Zoozy'gospore**, a motile zygospore.

**Zygog'amae** (*ζυγός*, a yoke, *γάμος*, marriage), Ardissone's term for Algae, excluding the Florideae; **Zygogon'ium** (*γόνος*, offspring), the female conjugating cell in Conjugatae; **zygomorph'ic**, **zygomor'phous** (*μορφή*, shape), used of flowers which are divisible into equal halves in one plane only, usually the antero-posterior, *cf.* ACTINOMORPHIC; Sachs extends the meaning to such flowers as may be equally bisected in any one plane, as *Dicentra*; **Zygomorph'ism**, or **Zygomor'phy**, the state just described; it may be **diag'onal** ~, as in Solanaceae, or **trans'verse** ~ as in Papaveraceae; **Zygomyce'tes** (*μύκης*, a mushroom), a division of Phycomycetes possessing zygospores (Tubeuf); **Zy'gophytes** (*φυτόν*, a plane), applied to Algae which conjugate; adj. **zygophyt'ic**; **Zygo'sis**, M'Nab's term for the union of gametes to form a zygote; **Zy'gosperm** (*σπέρμα*, a seed), a proposed emendation of ZYGOSPORE; **Zy'gosphere** (*σφαῖρα*, a sphere) = GAMETE; **Zy'gospore** (*σπορά*, a seed), a body produced by the coalescence of two similar gametes; **Zygospor'ophore** (+ SPOROPHORE), the suspensor in Mucorini.

**Zy'gote** (*ζυγωτός*, yoked), a body produced by fertilization or conjugation of two gametes; **Zy'gotoid** (*εἶδος*, like), the result of the union of two gametoids, that is, apocytial structures, as in *Mucor* (Hartog).

**Zygozo'ospore** (*ζυγός*, a yoke, + ZOOSPORE), a motile zygospore.

**Zy'mase** (*ζύμη*, leaven), (1) formerly applied to the whole group of ferments; (2) an enzyme occurring in yeast; *cf.* ANTHOZYMASE, and ZYTHOZYMASE; **zy'mic**, relating to fermentation; **Zy'mogen** (*γεννάω*, I produce), the "mother of fermentation," an antecedent body of an enzyme; **zymogen'ic**, applied to a peptonising enzyme; **Zymohydrol'ysis** (*ὕδωρ*, water, *λύσις*, a loosing), fermentation induced by the absorption of water; **Zymol'ysis**, decomposition by the action of ferments; **Zy'mom** or **Zy'mome**, one of the proximate principles of wheat-gluten, *cf.* GLIAN; **Zymo'sis**, fermentation; **zymot'ic**, (1) relating to fermentation; (2) applied to diseases due to infection by germs, with their rapid increase.

**Zythozy'mase** (*ζύθος*, beer, + ZYMASE), an enzyme in yeast, also found in certain Fungi.

# ADDITIONS DURING THE PRINTING OF THE PRECEDING PAGES

NOTE.—*The derivations here given are strictly supplementary to those in the main alphabet.*

**Ab'last**, the entire suppression of an organ, as distinct from ABORTION, in which it remains rudimentary or partially developed (Eichler).

**abys'sal** (*ἄβυσσος*, bottomless), applied to organisms existing in the depths of the ocean (Warming).

**accessor'ial**, specially applied to those branches of *Pithophora* arising from near the base of the mother-cell (Wittrock); **acces'sory Indu'sium**, when the margin of a fern-frond is inflexed over the sorus.

**Acclima'tion** (*ac* = *ad*, to, *clima*, climate), used by L. H. Bailey for the natural process of becoming inured to a climate at first harmful; **Acclimatiza'tion**, is preferred for scientific use, especially when denoting human action in inuring plants to a strange climate.

**accu'ment** (Heinig) = ACCUMBENT.

**a'cer**, used by some authors instead of the generally adopted **a'cris**, (1) sharp, pointed; (2) acrid, as in *Ranunculus acris*, Linn.

**acera'ceous**, relating to the genus *Acer*, or its allies.

**achlorophylla'ceous** (*a* = without + CHLOROPHYLLACEOUS), destitute of chlorophyll.

**acic'ular**, phase of *Bacterium Termo*, Cohn, is when it becomes needle-shaped.

**Ac'orin**, a glucoside from *Acorus Calamus*, Linn., which is used in perfumery.

**acqui'red** (*acquiro*, I add to), used of those characters which arise in the life-time of the organism as the result of the environment, in distinction to hereditary characters.

**Acran'thi**, pl. (*ἄκρος*, uppermost, *ἄνθος*, a flower), employed by W. Wilson to denote terminal inflorescences in Mosses.

**Acrocecid'ium** (+CECIDIUM), a deformity of the terminal bud, due to gall-insects; **Acrochlamyd'eae** (*χλαμύς*, a tunic), a term proposed by Hoeck for all haplostemonous Gamopetalae exclusive of Cucurbitaceae, but inclusive of Umbelliferae; a group considered by him to stand at the head of Dicotyledons; **Acroconid'ium** (+CONIDIUM), used of those conidia which successively mature and break away from the apex of the conidiophore (A. Fischer).

**actinod'romous** (*δρόμος*, a course), when veins are palmately or radially arranged, as in *Acer*; **Actinomor'phy** (*μορφή*, a change), an ACTINOMORPHIC arrangement.

**adap'tive** modifications are those which obviously fit an organism to exist in given environments, and perhaps produced by the latter.

**ad'ligant**, **al'ligant** (Heinig); *cf.* ADLIGANS.

**Aecid'iolum**, in Uredineae, a small form and usually a later development of the *Aecidium*-stage; a spermogonium.

**Aegagrop'ilae**, pl. (*ἀίγαγρος*, a wild goat, *πῖλος*, felt), Lagerheim's term for those marine Algae which are

more or less spherical, and freely driven about in the sea.

**ae'reus** (Lat.), copper-coloured, or bronzed.

**A'ërobe**, a suggested abbreviation of AEROBIUM; **aëroph'ilous** (*φιλέω*, I love), Beijerinck's term for essentially aërobiotic organisms; *cf.* MICROAËROPHILOUS.

**Aestiva'ria**, the summer quarters of plants in botanic gardens.

**afo'liate** (*a*, without, *folium*, a leaf), leafless; a hybrid word for APHYLLOUS.

**Agamob'ium** (*βίος*, life), H. Gibson's term for the asexual generation in organisms showing alternation of generations; the sporophyte; **Agamonoe'cia** (+ MONOECIA), used by Engler and Prantl for those plants which have hermaphrodite and barren flowers in the same inflorescence, as *Viburnum Opulus*, Linn.

**Agrostol'ogist**, an expert or writer on grasses.

**agricult'ural** species, so-called, are constant forms or varieties of cultivated plants, as maize, wheat, etc.

**Albica'tion**, becoming blanched or variegated with white.

**al'goid** (*εἶδος*, resemblance), like an Alga; **Al'go-li'chenes**, Lindsay's term for certain transitional forms between Algae and Lichens.

**Al'iquote** (*aliquot*, some in numbers), the constant of temperatures for a given event in the life-cycle of an organism; the sum-temperature of the event divided by the total sum-temperature of the year (Linsser).

**alternipet'alous** (*πέταλον*, a flower leaf), applied to stamens alternating with the petals; **alternisep'alous** (+ SEPALUM), used of petals alternating with the sepals.

**Am'ber**, the English name of SUCCINITE.

**Ambro'sia**, the mycelial or oidial stage of a Fungus, probably of some Ascomycete, found in the burrows of some beetles in fruit-trees, and believed to be used as food.

**Amentiflo'rae** (*flos*, *floris*, a flower), wind-fertilized, catkin-bearing plants, as the hazel or willow (Delpino).

**am'inoid** (*εἶδος*, resemblance), used by Kerner for those scents which have an amine as their foundation, and diffuse into the air, such as the hawthorn and elder.

**Am'pelid** (*ἄμπελος*, a vine), used by J. Smith for any climbing plant; **Ampelog'raphist** (*γράφω*, I write), a writer on vines.

**amphicoe'lous** (*κοῖλος*, hollow), concave on both sides (Heinig).

**amphicri'bral** (*cribrum*, a sieve), applied to a hadrocentric bundle (Haberlandt); **Amphigen'esis** (*γένεσις*, beginning); **Amphig'ony** (*γόνος*, offspring), sexual reproduction (Haeckel); **Amphigon'ium**, Kerner's term for ARCHEGONIUM; **amphistomat'ic** (+ STOMA), with stomata on both upper and lower leaf-surfaces; **amphitroph'ic**, relating to AMPHITROPHY; **amphiva'sal** (*vasa*, vessels), used of a leptocentric bundle (Haberlandt).

**anaeret'icus** (*αν*, without, *αἱρετικός*, power of choosing), applied by C. Schimper to an abnormal arrangement of the leaves in single rows on the axis, as happens in torsion, etc.

**androdynam'ic**, = ANDRODYNAMOUS.

**Anast'ates**, pl. (*ἀνάστατος*, removed), the products of anabolic or ascending conversion of food-material into protoplasm (Parker).

**Anataximorph'osis** (*αν*, without, *τάξις*, order, *μορφή*, change), Gubler's term for teratologic changes which are in conformity with the normal order; **anatyp'ic** (*τύπος*, a type), applied to an anomaly which conforms to the general law of the organism; **Anaty'pose**, an anomaly of the kind specified (Gubler).

**anchor'aeform** (*anchora*, an anchor, *forma*, shape), with two limbs, as in the petals of *Ankyropetalum*, Fenzl.

**androe'cial**, relating to an androecium.

**Androconid'ium** (+CONIDIUM), term propounded by Cohn for a spermatium of assumed male function; **Androgen'esis** (*γένεσις*, beginning), the growth of an individual from a male cell; *cf.* PARTHENOGENESIS; **An'drospore** [add], (2) (A. W. Bennett) = MICROSPORE; **Androsporan'gium** (+SPORANGIUM) = MICROSPORANGIUM.

**Anelectrot'onus**, the derivation is from *ἀνὰ*, up, which makes it correlative to Katelectrotonus; the erroneous derivation (*αν*, without) on page 15 was taken from Whitman's "Century Dictionary."

**Anemoëntomoph'ily** (+ ENTOMOPHILY), employed of a polymorphic species which in some individuals is adapted for wind-fertilization, and in others for insect-fertilization (Knuth).

**angiosper'mous**, **angiosper'mal**, relating to Angiosperms.

**Anla'ge**, see FUNDAMENT (in Additions).

**antedimor'phic** (+DIMORPHIC), the condition of a species previous to its attaining Dimorphism, as *Viola*, supposed to be at one time trimorphic (S. Moore); **An'teform** (*forma*, shape), an original form which has died out, but has given rise to modified offspring (Kuntze); **anteplacen'tal** (+ PLACENTA), in front of the placentas, not between them.

**An'ther**, add, (2) also used by Linnaeus for the seta and capsule of Mosses, as *Bryum*; **An'therocyst** (*κύστις*, a bladder), Caruel's term for ANTHERIDIUM.

**antherid'ial**, **antherid'ic**, pertaining to antheridia.

**An'thocarp**, *Anthocarp'ium*, a fruit formed by the union of the floral organs or part of them, with the fruit itself, as in Nyctagineae; **Anthog'amae** (*γάμος*, marriage), Trevisan's term to include Bryophytes and Characeae; **An'thophyte** (*φυτὸν*, a plant), a flowering plant, a Phanerogam; **Anthoxan'thin**, add, (2) used by Frank as a synonym of CAROTIN; **Anthozy'mase** (+ZYMASE), an enzyme found by Béchamp in the petals of flowers.

**Antichem'ism** (*ἀντὶ*, against, + chem), Cope's term to denote the protoplasm-producing energy, as antagonizing chemical force; **antid'romous**, twining in diverse directions.

**Antic'ipatory Inher'itance**, suggested by Boulger for what has since been called Precocity.

**An'ticlines**, anticlinal walls or planes.

**anti'cous**, add, (2) occasionally employed for introrse, as applied to anthers.

**Antip'athy**, the quality shown by antipathetic plants.

**antipet'alous** (*πέταλον*, a flower-leaf); the same as OPPOSITIPETALOUS; **antisep'alous** (+ SEPALUM); a shorter word for OPPOSITISEPALOUS, **antitrop'ic** (*τροπὴ*, a turning), suggested by A. Gray for twining against the sun, that is, sinistrorse.

**anu'cleate** (*α*, without, + NUCLEUS), non-nucleate.

**Apan'dry**, add, (2) the loss of function in the male organs.

**aperisperm'ic** (+PERISPERM), without albumen (Heinig).

**apertiflo'rous** (*flos*, *floris*, a flower), Boulger's term for CHASMOGAMIC.

**Apet'aly**, the condition of wanting petals; *cf.* APETALOUSNESS.

**apho'tic**, **aphotis'tic**, growing without light, as abyssal organisms may do; *cf.* APHOTISTES.

**Aplanogametan'gium** (*ἀγγεῖον*, a vessel), the organ which gives rise to aplanogametes.

**apocyt'ial**, of the nature of an APOCYTIUM, an habitually plurinucleate mass of protoplasm, cell-division remaining in abeyance.

**apocyn'eous**, relating to the genus *Apocynum* or its allies.

**apogam'ic**, apogamous; **Apog'amy**, add, (2) independently framed by

Romanes to express "indiscriminate isolation"; **Apogesta'tion** (*gestatio*, a bearing), defined by A. S. Wilson as "the gestation of the germ of one plant in the tissue of a wholly different plant away from the generating system"; **Ap'ophytes**, pl. (*φυτόν*, a plant), Boulger's term for Lichens; **apoplasmo'dial** (+ PLASMODIUM), and **apoplastog'amous** (+ PLASTOGAMY), said of the Acrasieae, as differing from the Myxogastres by the non-fusion of their cytoplastic elements (Hartog); **ap'oschist** (*σχιστός*, split), used of a gamete in which cell-division does not occur, but the cell directly assumes the behaviour of a gamete (Hartog); **apostroph'ic**, relating to APOSTROPHY; ~ **In'terval**, the space on the PHOTRUM capable of apostrophizing chlorophyll granules (S. Moore); also termed **Apostroph'ion**; **Apostrophiza'tion**, the act of chlorophyll granules in taking up the position of APOSTROPHE; **Apotaximorph'osis** (*τάξις*, order, *μορφή*, shape), Gubler's term for any teratologic change which seems antagonistic to the normal laws governing the organism; **apot'ropous** (*τροπή*, a turning), used of an anatropous ovule with the raphe ventral; **apotyp'ic** (*τύπος*, a type), an anomalous departure from the general law of development; **Apoty'pose**, an abnormality of the kind specified (Gubler).

**ara'ceous**, relating to the order Araceae.

**Arch'esperm** (*σπέρμα*, a seed), the fertilized contents of an archegonium (Bennett and Murray); **Arch'isphere** (*σφαῖρα*, a sphere), the contents of an archegonium previous to fertilization; **Archianth'emum** (*ἄνθεμον*, a flower), C. Schimper's term for a well-developed flower at the apex of a botryoid inflorescence, where it is normally absent (Penzig); **Archichlamyd'eae** (*χλαμύς*, *χλαμύδος*, a cloak), Engler's term including the Polypetalae and the Incompletae; **archigon'ic** (*γόνος*, offspring), arising by spontaneous generation Haeckel); **Archocleistog'amy** (+ CLEISTOGAMY), when the flowers remain closed at the time when the sexual organs ripen (Knuth).

**arctogae'al** (*γῆ*, the earth), in plant-distribution refers to Huxley's term **Arctogae'a**, which includes Europe, Asia, Africa, and North America as far as Mexico.

**ardos'iacus** (Mod. Lat., from Fr. ardoise, slate), slate-grey.

**arenic'olous** (*arena*, sand, *colo*, I inhabit), growing in sand or sandy places.

**Are'ola**, add, (4) a lumen in the sporangium of *Achyla*, due to the influx of water (Harper).

**arieti'nous** (*arietinus*, pertaining to a ram), like a ram's head (Heinig).

**aril'loid** (*εἶδος*, resemblance), like an aril.

**ar'millate** (*armilla*, a bracelet), consisting of rings or circles; **ar'millary**, like a bracelet (Heinig).

**aroid'eous**, relating to the order Aroideae.

**arthrodes'moid**, resembling in form the Desmid genus *Arthrodesmus* (Archer).

**arthrog'enous** (*γένος*, offspring), when portions separate from the cell, and gradually develop into distinct individuals (Massee).

**Articula'tion**, add, (2) the basal portion of the sensitive bristle in *Dionaea*.

**As'arin**, the bitter principle of Asarabacca, *Asarum europaeum*, Linn.

**asclepiad'eous**, like the genus *Asclepias* or its allies, as to structure; **Asclepiadol'ogy** (*λόγος*, discourse), the science, or a treating of the order of Asclepiadeae (Schlechter).

**As'cocyst** (*κύστις*, a cavity), a large hyaline empty cell with a thick wall, by some authors termed a paraphysis, occurring in *Myrionema* and allied genera (Sauvageau); **ascogon'ial**, relating to an ASCOGONIUM.

**asper'ulous**, slightly rough with little points (Braithwaite).

**Asphyx'ia** (*ἀσφυξία*, without a pulse), in plants, insensibility brought on by suspension of respiration due to absence of oxygen (Dutrochet).

**Aspidia'ria**, formerly the name of a genus of fossils, now applied to a lepidodendroid stem when the cortex has been stripped off (Scott),

**assim'ilative**, conducing to ASSIMILATION; ~ **Fil'aments**, sterile hairs which grow intermixed with the sporangia of such Algae as *Ectocarpus*.

**aster'iate** (Heinig) = ASTEROID.

**Asterid'ia**, pl. (*ιδιον* = diminutive), spinous or stellate bodies occurring in the cells of Conjugatae, possibly some parasitic form (Archer); **Asterosphae'ria**, pl. (*σφαῖρα*, a sphere), a synonym of the same.

**Astigmat'icae**, Knuth's term for wind-fertilized plants which do not possess stigmas, such as Gymnosperms.

**astrag'aloid** (*ασтράγαλος*, a knuckle-bone, *εἶδος*, resemblance), dice-shaped (Heinig). NOTE. — This definition has no reference to any affinity with the genus *Astragalus*.

**As'trophe**, or **As'trophy** (*α*, not, *στροφή*, a turning), negative EPISTROPHE (S. Moore); **Asyn'gamy** (*σύν*, together, *γάμος*, marriage), the natural prevention of cross-pollination by the respective plants or species flowering at different times (Kerner); **asynthet'ic** (*σύνθετος*, compounded) **Gonid'ia**, free Lichen gonidia, occurring on the outside of the thallus (Koerber).

**atavist'ic** (*atavus*, an ancestor), reverting to an older type of structure.

**at'omate** (+ ATOM), "sprinkled with atoms" (Stevenson).

**atrate'**, **atra'tous**, given by Heinig as "turning black"; **a'trous**, dead black (Heinig).

**atyp'ic** (*α*, not, *τύπος*, a type), not typical, departing from the type.

**Attach'ment-disc**, the holdfast or basal hapteron of an Alga.

**aucupa'rious** (*aucupatorius*, used in fowling), "attracting birds" (Heinig).

**aulacocar'pous** (*αὖλαξ*, a furrow, *καρπὸς*, fruit), with furrowed fruit, sulcate (Heinig).

**Au'lax-galls**, galls which resemble stone-fruits produced by gall-wasps of the genus *Aulax*, especially on Labiatae (Kerner).

**aurantia'ceous**, like the orange, *Aurantium*, or the order to which it belongs (Heinig).

**auric'ulate**, *auricula'tus*, eared, auricled.

**Au'to-allog'amy** (+ ALLOGAMY), the condition of a species when some individuals are adapted for self-fertilization, and others for cross-fertilization, as in *Viola tricolor*, Linn. (Engler and Prantl).

**Autoch'thon** (*αὐτόχθων*, indigenous), an aboriginal form; a native plant, not an introduction; adj. **autoch'thonal**; ~ **The'ory**, the theory that each species originated where now found (L. H. Bailey).

**Autofecunda'tion** (+ FECUNDATION), self-fertilization; **autogam'ic**, autogamous, self-fertilized; **Autoph'agy** (*φάγω*, I eat), employed by Dangeard to express complete fusion of gametes; **autopot'amic** (*ποταμὸς*, a river), applied to Algae which have become adapted to living in streams; a modified form of tychopotamic plankton (Zimmer); **autotroph'ic** (*τροφή*, food), applied to plants which can collect their own nutriment, non-parasitic.

**Auxan'agram**, another spelling of AUXANAGRAMME.

**Auxil'iaries**, used by S. Moore for SYNERGIDAE; **auxil'iary Nu'cleus**, the nucleus of the auxiliary cell in *Drudesnaya purpurifera*, J. Agh. which does not fuse with the nucleus of the sporogenous cell when the cytoplasm does (Oltmanns); ~ **Ve'sicles** = SYNERGIDAE.

**Av'oform** (*avus*, a grandfather, + FORM), the still existing stem-form of RAMIFORM and PRAEFORM (Kuntze).

**Back-cav'ity**, the inner cavity of a stoma; in Germ. "Hinterhof."

**bacteria'ceous**, relating to bacteria; **bacterici'dal** (*-cida* = killer), germicidal, destructive of bacteria; **Bacte'rioblast** (*βλαστὸς*, a bud), applied by Winkler to gelatinous bodies, homogeneous at first, then in succession finely-, and coarsely-granular, at last becoming detached bacteria.

**Balanoph'orin**, a waxy substance which occurs in quantity in the stems of certain species of *Langsdorffia*, a genus of Balanophoreae, whence the name.

**ballis'tic**, or **balis'tic** (*βάλλω*, I expel) **Fruits**, used by Kerner to describe those fruits which discharge their seeds elastically; catapult-fruits.

**Bark-parench'yma**, the same as cortex-parenchyma.

**basid'ial**, relating to a BASIDIUM; ~ **Lay'er**, the structure in Agarics which produces or bears the basidia; **Basidioli'chenes**, Lichen-forming Basidiomycetes; **Basid'ium**, add, (2) employed by Thaxter for the swollen attachment of the conidium to the conidiophore in *Basidiobolus*, Eidam.

**basiplas'tic** (*πλαστὸς*, moulded), Prantl's term for those leaves whose permanent tissue appears first at the apex, the lower portion continuing longer as meristem.

**Bast-i'slands**, another name for PHLOËM-ISLANDS; ~ **Nerves**, liriform cells in the leaf of *Najas graminea*, Delile; ~ **Parench'yma**, phloëm parenchyma; ~ **Rays** = MEDULLARY RAYS.

**Bath'mism** (*βαθμὶς*, a step or degree), Cope's term to denote the force or energy of growth.

**bay**, dun-colour; an equivalent of BADIUS.

**Beglei'ter** (Ger., companion) **Cells**, small groups of thin-walled cells associated with DEUTER CELLS, and probably serving as conductors of water (Limpricht).

**Benth'os** (*βένθος*, depth, bottom), the vegetation at the bottom of the sea, lakes, or streams; the fixed growth as distinct from the plankton or floating growth.

**ben'zoloid**, a group of scents derived from aromatic bodies, as eugenol or oil of cloves, and in the flowers of Heliotrope, Lilac, etc. (Kerner).

**Berge'ria**, formerly considered a genus of fossils, now applied to a lepidodendroid stem when the epidermis has been stripped off (Scott).

**Ber'ry-cone**, a cone whose scales have become fleshy and fused, as in *Juniperus*.

**Bet'ulase**, the same enzyme as GAULTHERASE, but obtained from the bark of *Betula lenta*, Linn.

**Biastrep'sis** (*βιάω*, I force, *στρέψις*, the act of turning), (1) C. Schimper's term for TORSION; (2) the transition from decussate to spiral phyllotaxis (De Vries).

**biax'ial** (+ AXIS), used of a spore germinating at both ends (S. Moore); **Bicar'pals**, proposed by Bessey for the **Bicarpella'tae** of Bentham and Hooker, a series of gamopetalous Phanerogams (*cf.* Gen. Pl. ii. pp. vi-vii.); the latter term also used by Boulger to embrace the majority of Gamopetalae with Umbelliferae; **bicar'pellate**, having a two-celled fruit; **bicel'lular**, of two cells; **Bilat'eralism** (*latus, lateris*, a side), having similar or bilateral symmetry, taken by L. H. Bailey as the type of animal evolution.

**Biochem'ist**, an expert in the chemistry of living organisms; **Biochem'istry**, the branch of chemistry concerned with biology.

**biolog'ical Spe'cies**, those species which differ only by their physiological behaviour, being morphologically identical; **Bioph'agism** (*φάγω*, I eat), the absorption and digestion of the matter of living organisms (Boulger); adj. **bioph'-**

agous; **Bi'ophyte** (*φυτὸν*, a plant), a biophagous plant; **Bioplas'son** (*πλάσσω*, I mould), Elsberg's proposed emendation of BIOPLASM.

**Bio'sis** (*βιώσις*, the act of living), the state of vital activity; life (Escombe).

**bis'cuit-shaped**, when used in translations from the German, means, oblong, and slightly constricted in the middle.

**bistip'ular**, bistipulate; **bityp'ic** (*τύπος*, a type), applied to those genera which consist of two widely separated species; **biv'alent** (*valens*, strong), having hypothetically two chromosomes in each of the apparent chromosomes, in nuclear reduction divisions.

**Bizzari'a** (Ital., extravagant whim), a hybrid between the orange and the citron which has the character of both in juxtaposition, but without blending (Heinig).

**blastogen'ic** (*γένος*, offspring), employed by Weismann for those characters which have originated from changes in the germ (L. H. Bailey); **Blastoma'nia** (*μανιά*, madness), the production of an abnormal number of leaf-shoots (A. Braun); **Blastomyce'tes** (*μύκης*, a fungus) = SACCHAROMYCETES.

**bom'bysine** (Heinig) = BOMBYCINUS.

**Bo'rer**, the penetrating root of a parasite (De Bary).

**Bot'any**, add, (2) also used for a text-book or local-flora.

**Brach'eid**, Tschirch's suggested abbreviation of his own term BRACHYSCLEREID.

**Bract-cell**, used for certain cells on the branchlets of *Chara*.

**Bract'eole**, add, (3) a postical bract of Hepaticae (Spruce).

**Brach'yblast** (*βλαστὸς*, a bud), Hartig's term for a spur, or short branch; also spelled **Brach'yoblast**; **brachysty'lous** (+ STYLE), a synonym of MICROSTYLOUS.

**brad'yschist** (*βραδὺς*, slow, *σχιστὸς*, split), when in a brood mother-cell successive nuclear divisions are completed before cell-division (Hartog).

**brassica'ceous** (*Brassica*, + aceous), resembling the genus *Brassica*, or belonging to it.

**Bro'melin**, a proteolytic enzyme occurring abundantly in the juice of the pine-apple, which is a member of the Bromeliaceae, whence the name.

**Bry'ogams**, *Bryogam'ia* (*γάμος*, marriage), term proposed by Caruel for the Bryophytes; **Bryo'ma**, the vegetative substance of Mosses.

**Bud-corm**, the root-system of most herbaceous plants (J. Smith); ~ **-gall**, Kerner's term for a gall which involves several or all the members of a shoot, and may be leafless or leafy; **Bud'dage**, propagation by buds (L. H. Bailey).

**Bun'dle-ends**, the peripheral ends of bundles when spread out in the leaves or periphery of the stem; ~ **-trunks**, those bundles which pass through the stem, root, leaf-stalk and thick nerves of the leaf; they may be complete or incomplete.

**Bynedes'tin** (*βύνη*, malt, + EDESTIN), a globulin found in malt with **By'nin**, a proteid which replaces Hordein when barley is malted.

**bys'soid** (*εἶδος*, resemblance), the same as BYSSACEOUS.

**Caenogen'esis** (*καινὸς*, new, *γένεσις*, beginning), the acquisition of characters of a recent date, from readjustment to the environment (spelled also in various ways); *cf.* PALINGENESIS.

**calam'itoid** (*εἶδος*, resemblance), calamitean.

**Cal'athis**, see CALATHIDIUM.

**Callune'tum**, Warming's term for a plant-association consisting of heather, *Calluna*.

**Cal'ycals**, proposed by Bessey for Calyciflorae.

**cambiogenet'ic** (+ CAMBIUM, *γένος*, offspring), giving rise to cambium (De Bary).

**Canal'**, see SORUS-CANAL.
**canna'ceous**, relating to the genus *Canna* or its allies.
**Cap**, add (4) the short, upper, division of the dividing cell in *Oedogonium*.
**Carice'tum**, a plant-association of *Carex* (Warming).
**Carniv'orism**, the condition of insectivorous plants (Baillon).
**car'pellate**, possessing carpels; **Carpoceph'alum** (κεφαλή, a head), the sporogonial receptacle of the Marchantieae (Campbell); **carpogon'ial**, relating to a carpogonium; **Car'posphere** (σφαῖρα, a sphere), the oosphere of Algae before impregnation (Beńnet and Murray).
**caruncula'ris**, = CARUNCULATE.
**Caryomi'tome** (+ MITOM), the chromatin portion of the nucleus.
**caryopsid'eus**, like a CARIOPSIS.
**catagenet'ic**, relating to CATAGENESIS.
**Cath'ion** (κατά, down, + ION), an ion charged with electricity which migrates toward the cathode or negative pole (J. F. Smith); in physics the word is usually spelled "Cation."
**Cauliflo'ry**, the production of flowers from the old wood (C. Schimper); **cau'loid** (εἶδος, resemblance), emulating a stem, as in *Pithophora* (Wittrock).
**Cell-ker'nel**, = NUCLEUS.
**cenan'thous** (ἄνθος, a flower), adj. of CENANTHY.
**Cen'triole**, Boveri's term for CENTROSOME.
**Cen'ser-ac'tion**, used for such capsules as partially open by valves, the seeds being gradually shaken out by the wind, as *Papaver* and *Cerastium* (Kerner); **Cen'ser-holes**, apertures in the capsule, as in *Campanula*.
**chala'zal**, pertaining to the CHALAZA.
**Chasman'thery** (χάσμα, a chasm, ἀνθηρός, flowery), partial cleistogamy, when the stamens are exserted from the otherwise closed flowers (Knuth); adj. **chasmanthe'ric**; **Chas'mo-cleistog'amy** (+ CLEISTOGAMY), the condition of possessing both cleistogamic and chasmogamic flowers (Delpino); **Chas'mo-dichog'amy** (+ DICHOGAMY), when cleistogamic flowers are accompanied by others which are chasmogamic (Delpino); **Chas'mophyte** (φυτόν, a plant), a plant which grows in rock-crevices (A. F. W. Schimper).
**cheilod'romous** (δρόμος, a course), = CRASPEDODROMOUS.
**che'late** (χηλή, a hoof or claw), "with two cleft claws," *cf.* BIFURCATE (Heinig).
**chimonochlo'rous** (χειμών, winter, χλωρός, pale green), applied to plants whose thin herbaceous leaves persist through the winter (F. Ludwig); **chimonoph'ilous** (φιλέω, I love), the chief development taking place in the winter season (F. Ludwig).
**Chi'na-grass**, the fibre from *Boehmeria nivea*, Gaudich.; it was formerly confounded with RAMIE, *cf.* Kew Bulletin, 1898, p. 209.
**Chiropteroph'ilae** (Chiropteron = bat, φιλέω, I love), plants which are fertilized by bats.
**Chive**, (1) an old word for ANTHER; (2) sometimes confined to the FILAMENT; (3) an offset of a bulbous plant.
**chor'istate**, unlined (Lindley); *cf.* CHORISIS.
**Chloroglob'in** (*globus*, a ball), the green colouring matter of chlorophyll, which has been separated from it in the form of minute globules (Tswett); **Chlorophyl'lan**, a synonym of HYPOCHLORIN; **chlorophyllig'erous** (*gero*, I bear), bearing chlorophyll, or containing it, etc.; **chlorophyl'lose Cells**, those small cells in leaves of *Sphagnum* which contain chlorophyll.
**Choripet'alae** (πέταλον, a flower-leaf), (1) proposed by Bessey for Polypetalae; (2) by W. R. M'Nab for Polypetalae and Incompletae; **Choriza'tion**, a synonym of CHORISIS.
**Chromat'ic Sphere**, the coalescence of

the chromosomes after anaphasis; the nuclear membrane is formed round it (B. M. Davis); **Chromatol'ogy** (λόγος, discourse), used by Sorby to express the science of vegetable colouring matters; **Chro'mogen** (γένος, offspring), applied to sundry colourless substances in plants, which by artificial oxydation or fermentation produce a colouring matter; Indican is an example; **chromoph'ilous** (φιλέω, I love), employed for those nuclei which readily take up staining; **Chro'mule**, Sorby's term for any colouring matter in plants.

**Chylocau'la**, pl. (χυλός, juice, καυλός, a stem), plants with succulent stems, as Cacti (A. F. W. Schimper); **Chylophyl'la**, pl. (φύλλον, a leaf), plants with succulent leaves (A. F. W. Schimper).

**cicatric'ial**, relating to a scar, or CICATRIX.

**Circumvalla'tion** (*circumvallatus*, walled round), a method of layering, by ringing the stem and surrounding it with soil kept moist, while the stem continues erect.

**cirrhig'erous** (*gero*, I bear), cirrhiferous (Crozier).

**Cis'tern-ep'iphyte** (+ EPIPHYTE), employed by A. F. W. Schimper for that class of epiphyte in which the roots are mere supports or altogether suppressed, and the entire nourishment takes place by the leaves.

**citri'nus** (Mod. Lat., from *Citrus*), lemon-yellow.

**Cladoma'nia** (μανία, madness), an extraordinary exuberance of branches (Penzig); **cladostem'mus** (στήμων, a stamen), Hayne's term for semiconnate filaments in willows (Wimmer).

**Clamp-cell**, add, (2) "the nipple-like cells by which an epiphytic root adheres to its support" (Heinig).

**Cleistan'thery** (ἀνθηρός, flowery), the anthers of a partially cleistogamous flower remaining inside and not exserted (Knuth).

**Clea'vage** [dissyll.], sporangial division by which sporangiospores and conidia are formed; either (*a*) progressive, or (*b*) complete (Harper).

**Clin'ode**, a term proposed by Leveillé for the conidiophores of certain Fungi, as the Uredineae, etc.; *cf.* STERIGMA.

**Clus'ter-gall**, a gall with stunted axis and densely-crowded leaf-like appendages (Kerner).

**coadni'tus**, cited by Lindley as equal to COADNATUS.

**Coca'ine**, an alkaloid from the leaves of *Erythroxylum Coca*, Lam.

**coelen'terate** (κοῖλος, hollow, ἔντερον, a bowel), used by Boulger for the carnivorous habit of *Nepenthes* and *Cephalotus*; **Coe'loblast** (βλαστός, a bud), employed by Sachs for non-cellular Algae and Fungi; *cf.* APOCYTIUM; **Coelo'ma**, pl. **Coelo'mata**, Kuetzing's term for the body of *Vaucheria*, etc.; an unseptate coenocyte.

**Coenocar'pium** (κοινός, in common, καρπός, a fruit), the collective fruit of an entire inflorescence, as a fig or pine-apple; **Coenomonoe'cia** (+ MONOECIA), polygamous plants, the same individual having male, and female flowers, as well as the normal hermaphrodite flowers; the condition is **Coenomonoe'cism** (Kirchner).

**Coenocen'trum** (καινός, new, + CENTRUM), an unchanging central structure resembling a nucleus, in the oosphere of *Albugo* (Stevens); **coenocyt'ic**, of the nature of a coenocyte, non-cellular or multinucleate; **Coenogen'esis** (γένεσις, beginning), development by adjustment to the environment; *cf.* PALINGENESIS:—it is also spelled **Caen-, Cain-, Cen-, Ken-ogenesis.**

**Co'leïn**, the red colouring matter of *Coleus Verschaffeltii*, Lem.

**coleop'teroid** (Coleopteron, εἶδος, resemblance), resembling a beetle or

tick, as the seeds of many Euphorbiaceae (S. Moore).

**Col'lar**, add, (3) an encircling outgrowth at the base of the ovule in *Gingko* (Potter).

**collap'sing**, used by Babington for the form compared to a painter's pencil assumed by the submerged leaves of some aquatic plants when taken out of the water.

**Collec'tive Spe'cies**, a super-species, an assemblage of sub-species.

**col'ubrine** (*colubrinus*, like a serpent), snake-like in appearance (Heinig).

**Col'umn**, add, (2) the lower, twisted portion of the awn of grasses, not always present (Trimen).

**conid'ian**, referring to conidia.

**Conjuga'tion**, kinds of, as **cross** ~, when some cells in a given algal filament are active, and others passive; **lat'eral** ~, when it takes place cell by cell; **scala'riform** ~, when the entire filament is concerned.

**conjunc'tive** (*conjunctivus*, joining) **Symbio'sis**, applied by Frank to those cases in which the symbionts are so intimately blended as to form apparently a single body.

**contin'uous**, also used for ASEPTATE.

**Cord**, a synonym of STRAND.

**cordai'tean**, resembling the genus of fossils, *Cordaites*.

**Core**, add, (2) an axial strand of parenchyma in the haustorium of certain parasites (De Bary); **co're-less** [dissyll.], without core (Bailey).

**cormo'des** (κορμός, a trunk, εἶδος, resemblance), possessing an axis (A. Braun); **cormophylla'ceous** (φύλλον, a leaf, + aceous), used by E. Newman for those Ferns whose fronds are attached to the caudex.

**Coro'na**, add, (8) the MEDULLARY CROWN, or ~ SHEATH; ~ **stipula'ris**, the circle of stipulodes in *Chara* (Migula).

**coronopifo'lioid** (εἶδος, resemblance), recalling the foliage of *Plantago coronopifolia*, Brot., now merged in *P. macrorhiza*, Poir.

**Corpus'culum**, add, (4) = EGG, OOSPHERE.

**cort'ical Pore**, = LENTICEL; **corti-ca'ting**, constituting cortex, as ~ **Cells**, those which make up the cortex; **Cortica'tion**, the formation of cortex.

**corym'biform** (*forma*, shape), = CORYMBOSE.

**cotyloi'deus** (Mod. Lat.), = COTYLIFORM; **Cotyle'don - trace**, the common bundle in the stem proper to the cotyledon; its leaf-trace.

**Crad'ina** (κράδος, the wild fig-tree), a proteolytic enzyme existing in the juice of the common fig-tree, *Ficus Carica*, Linn.

**Crassinucella'tae** (*crassus*, thick, + NUCELLUS), Van Tieghem's term for plants whose nucelli remain of considerable bulk up to the time of the formation of the embryo; *cf.* TENUINUCELLATAE.

**Crate'ria**, pl., ascidia which are derived from the surface of a leaf (C. Schimper).

**creoph'agous** (κρέας, flesh, φάγω, I eat), a synonym of carnivorous, as applied to plants.

**Cross-conjugation**, see CONJUGATION, CROSS.

**Crypt**, used by G. Henslow for the front cavity of a stoma; **Cryptobio'tic** (βίος, life), Kuntze's suggested expression for those lowly organisms which appeared in geologic times, but have left no trace of their existence; **Crypt'oblast** (βλαστός, a bud) = KRYPTOBLAST; **Cryptog'amy**, the condition of cryptogamous plants; **cryptoner'vius** (*nervus*, a nerve), the nervation hidden, as by hairs or texture of the leaf; **cryptop'orous**, *-rus* (+ PORE), applied to stomata which are below the plane of the epidermis; *cf.* PHANEROPOROUS.

**Cul'tiform** (*cultus*, tilled, *forma*, shape), a cultivated form of a species or variety (Kuntze); **Cultohy'bridoform**, a cultivated hybrid of mixed parentage (Kuntze).

**Cu'nix**; Mr Gepp suggests as a possible derivation, *κύων*, a dog, *ἰξός*, birdlime, as being viscous but worthless as birdlime.

**cycada'ceous, cycad'ean**, allied to or resembling *Cycas*; **cycadofilicin'ean**, allied to the Cycadofilicineae, a group of fossil plants partaking of the characters of Cycads and Ferns, such as *Lyginodendron*, Williamson, and *Medullosa*, Cotta (Scott).

**Cy'clarch** (*ἀρχή*, beginning), the first member of a whorl; **Cyclocho'risis** (+ CHORISIS), Fermond's term for the division of an axial organ into a sheaf of secondary axes; **cycloly't'ic** (*λύσις*, a loosing) **In'terval**, the space on the PHOTRUM with all grades of illumination up to direct sunlight, capable of producing cyclosis or rotation of protoplasm in a plant-cell (S. Moore); **Cyclom'eter** (*μέτρον*, a measure), a series of concentric circles traced on a board, for comparison with curved structures; **Cyclu'ra** (*οὐρά*, a tail), the last member of a whorl.

**Cyperog'rapher** (*γράφω*, I write), a writer on Cyperaceae.

**cypripe'deous**, allied to or resembling *Cypripedium*.

**Cysticar'pium** = CYSTOCARP; adj. **cysticar'pic**.

**Cytioder'ma**, or **Cy'toderm** (*δέρμα*, a skin), (1) the cell-wall; (2) the outer layer of protoplasm next the cell-wall, the primordial utricle; **Cytioplas'ma** (*πλάσμα*, moulded), the cell-contents; **Cytochyle'ma** (*λήμη*, rheum), the contents of the cell, composed of PLASMOCHYM, and **Cy'tochym** (*χύμα*, that which is poured), the more watery sap present in the vacuoles of the plant-cell (Strasburger); **Cytogen'esis** (*γένεσις*, beginning), the development of cells; **Cytohydrol'ysis**, the action of an enzyme on the cell-wall, which becomes broken down in consequence; **Cy'tolite** = CYSTOLITH; **Cy'tolymph** (*lympha*, spring water), the more fluid contents of a cell; **cytoplas'tic** (*πλαστός*, moulded), relating to the CYTOPLAST.

**dac'tyloid**, (1) finger-like; (2) pertaining to the § *Dactyloides* of the genus *Saxifraga*.

**deaf**, has been applied to imperfect fruits of *Rumex*.

**Death-point**, the critical point when a spore is rendered permanently incapable of germinating (J. F. Clarke).

**decan'der** (Mod. Lat.), decandrous.

**Deform'ity**, a monster; **De'form** is used by Kuntze in the same sense.

**demat'ioid** (*εἶδος*, resemblance), like the genus *Dematium*, having a felted layer of hyphae bearing perithecia.

**Dermatocalyp'trogen** = DERMACALYPTROGEN.

**desmid'ian**, allied to the Desmidieae; **Des'midocarp** (*καρπός*, fruit), the special cystocarp of *Balbiania*; the fertilized trichogynial cell divides transversely, each daughter-cell in turn branching with terminal oospores.

**destarch'ed**, deprived of starch, as by translocation.

**Deu'ter** (Germ., an interpreter) **Cells**, a row of large parenchymatous cells, empty or containing starch, which occur in the middle nerve of Mosses (Limpricht).

**deus'tate, deus'tous** (*deustus*, burned up), as if scorched (Heinig).

**Deuterogonid'ium** (+ GONIDIUM), a gonidium in the second generation of a transitional series (A. Braun).

**Dew-rust**, "blotchy discolouration of leaves caused by dew" (Heinig).

**Di'ad**, a variation in spelling of DYAD, *infra*.

**diae'cious** = DIOECIOUS.

**dian'dreous**, the condition of Orchids having two perfect stamens (S. Moore).

**dibot'ryal** = DIBOTRYOID.

**dichopod'ial** (*δίχα*, two ways, *πόδιον*, a small foot), when an axis repeatedly forks giving rise to an inflorescence termed a **Dichopod'ium** (Pax).

**Dicot'ylae**, an abbreviation of Dicotyledonae.

**Dictyosporan'gium** (*δίκτυον*, a net, + SPORANGIUM), the sporangium of *Saprolegnia*, with encased spores germinating within the sporangium (Walpole and Huxley); **Dictyox'ylon** (*ξύλον*, wood), applied to the cortex of a fossil stem possessing a netted system of hypodermal fibrous strands, as in *Lyginodendron* (Scott).

**Dientomoph'ily** (+ ENTOMOPHILY), when in a species, some individuals are adapted for insect-fertilization by a different group of visitors from the remaining individuals (Engler and Prantl); **Dimonoe'cism** (+ MONOECISM), the condition of two out of three kinds of monoecious flowers, having perfect flowers, and (*a*) male, (*b*) female, or (*c*) neuter flowers also (Knuth).

**Dictyu'chus State** of Saprolegnieae, = DICTYOSPORANGIUM (Hartog).

**Di'odange** (+ DIODE, *ἀγγεῖον*, a vessel), a group of diodes surrounded by one or more layers of sterile cells (Van Tieghem).

**diplos'tichous** (*στίχος*, a row), in two series or rows; **diplox'ylous**, diploxylic.

**Dis'cals**, Bessey's proposed abbreviation of Disciflorae, a series of polypetalous Phanerogams.

**Disc** or **Disk**, add (7) the expanded base of the style in Umbelliferae; (8) in a bulb, the solid base of the stem, around which the scales are arranged.

**Discentra'tion** (*dis*, apart, *centrum*, centre), used by C. F. Schimper for (*a*) fasciation of the axis, and (*b*) multiple of a leaf-organ (Penzig).

**Dischis'ma** (*δίς*, two, *σχίσμα*, separation), the fruit of *Platystemon*, which divides into longitudinal carpels, each of which again divides transversely.

**disjunc'tive** (*disjunctivus*, disjoined) **Symbio'sis**, applied by Frank to those cases in which the symbionts do not form an associated organism, but are temporarily associated, as in the case of insects and plants.

**Dis'trophy** (*τροφή*, nourishment), employed by Re for disparity in size of homologous organs.

**dodecan'der**, dodecandrous.

**dolichosty'lous** (+ STYLE), in dimorphic or trimorphic species applied to the long-styled form.

**Dom'itoform** (*domitus*, tamed, *forma*, form), a cultivated form, the original being unknown or dissimilar (Kuntze).

**doub'le Fructifica'tion**, dimorphism in fruit, applied to certain Algae; ~ **Nee'dle**, in *Sciadopitys*, a dwarf branch without bud-scales, the two leaves being fused together at the edges into one needle.

**Dromot'ropism** (*δρόμος*, a course, *τροπή*, a turning), the irritability of climbing plants which results in the spiral growth (Macmillan); adj. **dromotrop'ic**.

**Drupe, false**, a nut-like fruit where the lower persistent part of the perianth becomes fleshy, as in *Neea*.

**du'plicate Par'asitism**, self-parasitism, as in the case of mistleto upon mistleto.

**Dy'ad**, a subdivision of a TETRAD by mitosis, again dividing into single elements (Calkins).

**dyspho'tic**, **dysphotis'tic** (*φῶς*, *φωτός*, light), applied by A. F. W. Schimper to the deeper situated BENTHOS; ~ **Plants**, are those which are adapted to a minimum of light; **dyst'ropous** (*τροπή*, a turning), injurious insect-visiting, as far as the flowers are concerned; **Dys'tropy**, the condition described.

**ecil'iate** (+ CILIUM), without cilia; **eflagellif'erous** (+ FLAGELLUM, *fero*, I bear), destitute of flagella.

**Ec'topy** (*ἐκτόπιος*, displaced), the abnormal position of an organ.

**edaph'ic** (*ἔδαφος*, the ground), A. F. W. Schimper's term for the influence of the soil on the plants growing upon it.

efov'eolate (*fovea*, a pit), "smooth, without pits or depressions" (Heinig);—the form "eforeolate" is a press-error.

**Egg-sac**, the mesochite and endochite of Fucaceae, the membranes which enclose the egg (Farmer and Williams).

**Electrot'onus** (*ἤλεκτρον*, amber, *τόνος*, stress), a latent period of electric stress (Hoermann).

**eleutherotep'alous** (+ TEPAL), having free tepals (Pax).

**Emascula'tion**, in plants, the removal of the stamens before they dehisce, from hermaphrodite flowers previous to artificial hybridization.

**Em'bryo-cord**, in *Hydnora*, a single row of flattened cells connecting the embryo with the outer surface of the albumen (Solms-Laubach); **Embryoblas'tanon** (*βλαστός*, a bud), Miquel's term for the suspensor in Cycads; **embryon'ic Appen'dage**, the apical portion of the suspensor in grasses (Vines).

**emprosthod'romous** (*ἔμπροσθεν*, in front, *δρόμος*, a course), used of a flower when the genetic spiral on its shortest way from the bract to the outermost perianth-segment passes outside the flower, farthest from the axis.

**En'alid** (*ἐνάλιος*, marine), Warming's term for such plants as *Zostera*, *Halophila*, and other marine submersed Phanerogams.

**En'dochyle** (*χυλός*, juice), a plant which has its water-tissue within its assimilating tissue (A. F. W. Schimper); **En'dochrome-plate**, used of the two bands of colour in the frustule of navicular Diatoms, lying on the connecting band (Pfitzer); **endoder'moid** (*εἶδος*, resemblance), like the ENDODERMIS (Rendle); **Endomer'istem** (+ MERISTEM), Russow's term employed by Vaizey for that meristem in a Moss which produces the central strand; **Endonucle'olus** (+ NUCLEOLUS), a space inside the nucleolus (Huie); **endophyt'ic**, (*φυτόν*, a plant), relating to an endophyte, a plant living in the interior of another living plant; **En'doplast** (*πλαστός*, moulded), the protoplasmic contents of a cell (Huxley); **Endothe'lium** (*θήλη*, a nipple), Schwere's name for ENDODERMIS.

**En'trance**, the outer aperture of a stoma; in Germ. "Eingang."

**enu'cleate** (+ NUCLEUS), destitute of a nucleus.

**En'velope-cell**, Archer's equivalent of Cohn's "Hüllzelle"; the common hyaline envelope of a colony of *Stephanosphaeria pluvialis*, Cohn.

**Enzymol'ogy** (+ ENZYME, *λόγος*, discourse), the study of the soluble ferments; **Enzymo'sis**, changes induced by the action of an enzyme.

**eoclad'ous** (*ἠώς*, dawn = early, *κλάδος*, a branch), applied by Prantl to those leaves which in development become branched while in the meristematic state.

**Epiblas'teme**, a tuft of glandular emergencies which act as colleters, their cells secreting a viscid substance (Kerner).

**Ephydrogam'icae**, pl. (*ἐπί*, upon, *ὕδωρ*, water, *γάμος*, marriage), Knuth's term for plants whose flowers are fertilized on the surface of water, as *Vallisneria*; **Ephydrog'amy**, the condition described; **Epig'yny**, the state of having epigynous flowers.

**Epipedochor'isis** (*ἐπίπεδος*, level, + CHORISIS), the division of an axial organ in one plane; it frequently does not differ from FASCIATION (Penzig).

**epiphloe'dic** = EPIPHLOEDAL; **Epithe'mata**, pl. of EPITHEMA; **epiphyta'ceous** = EPIPHYTIC; **epistroph'ic In'terval** or **Epistroph'ion**, that space on the PHOTRUM within which epistrophe may take place (S. Moore); **epitroph'ic** (*τροφή*, nourishment), having relation to EPITROPHY (Wiesner).

**epistom'eous** (*στόμα*, a mouth), "spigot-shaped" (Heinig).

**equiseta'ceous** = EQUISETIC; **Equisete'-**

tum, Warming's term for a plant-association of *Equisetum*.

**erica'ceous**, heath-like, or allied to the genus *Erica*.

**erice'tinous**, "growing on heaths" (Heinig).

**eri'nous**(*er*, *eris*, a hedgehog), "prickly, rough with sharp points" (Heinig).

**Escape'**, a cultivated plant found growing as though wild, dispersed by some agency.

**ethnobotan'ic** (ἔθνος, a tribe, βοτάνη, a herb), relating to those plants which illustrate or are typical of the customs of a given race or people.

**e'tiolative**, tending to disease; **etiolog'ical**, connected with ÆTIOLOGY.

**eupot'amic** (ποταμὸς, a river), applied to the plankton of running or standing inland waters (Zimmer).

**Euthal'lophytes**, Engler's term for THALLOPHYTES exclusive of Myxogastres.

**Excoria'tion** (*ex*, out of, *corium*, skin), the falling off of the outer layer of the terminal cells of glandular or capitate hairs, as in *Geranium* (Heinig); **Excortica'tion** (*corticatus*, covered with bark), the stripping of bark.

**Ex'it**, the inner aperture of the slit of a stoma; in Germ. "Ausgang."

**Ex'ocarp**, *Exocar'pium* (ἔξω, outside, καρπὸς, fruit), the outer layer of a pericarp; **Exomer'istem** (+ MERISTEM), Russow's term for the meristem which produces all the tissues of a Moss outside the central-strand, namely cortex and epidermis (Vaizey); **Exopleu'ra** (πλευρὰ, the side) = TESTA (Heinig); **Exot'ism**, a shortened form of **Exot'icism**, the condition of non-nativity, introduced from abroad.

**Explodiflo'rae** (*explodo*, I drive off, *flos*, *floris*, a flower), Delpino's term for wind-fertilized flowers which expel their pollen by an explosive action.

**exraphid'ian** (*ex* = without, + RAPHIS), destitute of raphides (Gulliver).

**ex'tra-xylem'ic** (+ XYLEM), outside the xylem (Roulet).

**Exu'sion**, Berkeley's term for EXUDATION.

**fa'cial**, applied to a hilum which is on the side and not on the margin of a seed (Heinig).

**Fan**, an equivalent of RHIPIDIUM.

**Fasergrübchen** (Germ.) = CRYPTOSTOMATA.

**Fi'brotype** (*fibra*, a filament, *typus*, a type), Macdougal's expression for the condition of a root of *Cephalanthera* with a reduction and fusion of the stelar compounds, and radially elongated cortex.

**Fil'ial-cell**, Henfrey's term for Daughter-cell.

**filicin'ean**, relating to the Filicineae, that is, Ferns in the widest sense (Scott).

**fimic'olous** (*fimus*, dung, *colo*, I inhabit), growing on manure-heaps.

**Fi'niform** (*finis*, a boundary, + FORM), a form whose nearest relations have completely died out (Kuntze).

**Fissipar'ity** = FISSIPARISM.

**Flo'ral-leaf**, suggested equivalent for the Germ. "Hochblatt"; a bract.

**fluorescigen'ic** (+ FLUORESCENCE, γένος, offspring), causing fluorescence, as certain bacteria.

**Fo'liole**, *Fol'iola*, add, (2) employed by Spruce for the postical leaves of Hepaticae, those on the ventral or rooting surface; **fo'liose**, applied to a Lichen with a leaf-like expansion of the thallus.

**Fore-leaf**, a translation of the Germ. "Vorblatt"; a bracteole or prophyllum.

**Form**, nearly thirty special terms are enumerated by O. Kuntze in his "Methodik der Speciesbeschreibung," pp. 15-17.

**Founda'tion**, a literal rendering of the Germ. "Anlage."

**Front-cav'ity**, the outer cavity of a stoma; in Germ. "Vorhof."

**Fruit-bear'er**, Potter's term for CARPOPHORE; ~ **-bod'ies**, (1)

zygotes which show subdivision into spores; (2) sporophores; ~ **-forms**, forms or means of reproduction of Fungi (Potter).

**Fru'tical**, a small shrub with a soft-wooded stem, such as shrubby species of *Geranium* (J. Smith); **Fru'tlet**, suggested for low tufted evergreen plants as Saxifrages (J. Smith).

**Fructifica'tion, dou'ble**, dimorphic fructification in Algae.

**fruticules'cent** (*fruticulus*, a small shrub, + escens), applied to a Lichen when somewhat shrubby (Crombie).

**fumaria'ceous**, pertaining to *Fumaria*, or its allies.

**Fun'dament**, a suggested equivalent of the Germ. "Anlage" (Potter).

**Fun'go-li'chens**, Lindsay's term for plants considered to be transitional forms between Fungi and Lichens.

**Funic'ulus**, add, (3) used by W. Griffith for the suspensor of *Gnetum*.

**Gamob'ium** (γάμος, marriage, βίος, life), H. Gibson's term for the sexual generation of organisms which show alternation of generations (Parker), a gametophyte; **Gam'etophyt** = GAMETOPHYTE.

**ganglion'eous**, used by Lindley for hairs which bear branchlets on their articulations.

**Gas-vac'uoles**, special floating organs in certain Cyanophyceae, as *Anabaina* (Kerner).

**Gem'maecorm** (*gemma*, a bud, + CORM), J. Smith's term for a bud-corm, applied to herbaceous plants with a root-crown which increases by side-buds; **Gemma'tion**, add, (3) budding, as in the multiplication of yeast (Huxley); **Gemmid'ium**, = TETRASPORE.

**geotac'tic**, relating to GEOTAXIS.

**gerania'ceous**, resembling or allied to *Geranium*.

**gibbo'sus** (Lat.) = GIBBEROSUS.

**gin'glymoid** (γιγγλυμός, a hinge, εἶδος, resemblance), like a hinge (Heinig).

**Gir'dle-band**, the hoop, girdle or cingulum of a Diatom-frustule.

**Glaucogonid'ium** (γλαυκός, bluish grey, + GONIDIUM), the bluish green gonidium of Lichens (Bornet).

**gle'bulose**, possessing a gleba, or resembling it.

**gleocap'soid** (εἶδος, resemblance), like the genus *Gleocapsa*.

**glob'ulose**, *globulo'sus*, a diminutive of GLOBOSE.

**glumose'**, *glumo'sus* = GLUMACEOUS.

**glyco'sic**, resembling the action of the enzyme GLUCOSE.

**glyphol'ecine** (γλύφω, I hollow out), with wavy longitudinal canals or grooves (Heinig).

**Gonian'gium**, term proposed by A. Braun to include cystocarps and the scyphi of Hepaticae; **gonid'ic**, possessing gonidia (Lindsay); **gonid'ioid** (εἶδος, resemblance), gonidium-like; **Gon'iocyst** (κύστις, a bag), a sporangium (A. Braun); **Goniocyt'ium** (κύτος, a hollow) = GONIDANGIUM; **Gonocys'tia** = GONOCYSTS; **Gon'osphere** (σφαῖρα, a sphere), a zoogonidium of Chytridiaceae (Nowakowski).

**Grand'mother Ax'is**, the primary axis of a series of three (Potter); ~ **Cell**, the primary cell of a third generation.

**Gran'ula**, a minute particle, the assemblage of such being held to constitute protoplasm (Oltmanns).

**Greg'iform** (*grex*, *gregis*, a flock, + FORM), a variable or polymorphic FINIFORM (Kuntze).

**gymnocar'pic**, gymnocarpous; **Gym'nogams**, **Gymnog'amae**, (2) Caruel's term for all plants possessing naked motile male cells; **Gymnosper'mism**, the real or supposed condition of plants with naked seeds.

**Gyn'ospore** (σπορά, a seed), formerly suggested for macrospore, that is, a MEGASPORE; **Gynosporan'gium** (ἀγγεῖον, a vessel), a sporangium producing the same.

**hadrocen'tric** (*centrum*, the middle) **Bun'dle**, having the hadrome in the centre surrounded by the leptome (Haberlandt) ; **Had'romase**, an enzyme found in *Merulius lacrymans*, Schum., and other Fungi, which attacks the hadrome and destroys its lignified cell-walls (Czapek).

**half-hu'mus Plants**, semi-saprophytes.

**halo'nial**, used of the fertile branches or tubercles of the fossil *Lepidophloios*, formerly considered as belonging to *Halonia*, Lindley et Hutt., non Fries.

**Haplan'the** (*ἁνθη*, a blossom), Huxley's term for the hypothetic anemophilous type of the flowers of Gentianaceae ; *cf.* Journ. Linn. Soc., Bot. xxiv. (1887), 112, 122 ; **haplocau'lous** (*καυλὸς*, a stem), having a simple unbranched stem.

**Hekis'totherm** (*ἥκιστος*, the smallest, *θέρμη*, heat), a plant which needs but little heat, and can withstand long periods of darkness (Warming).

**Heleoplank'ton** (*ἕλος*, a marsh, + PLANKTON), the floating vegetation of marshes, which overpowers the animal plankton ; it differs from Potamoplankton by less motion of the water (Zimmer).

**hel'icoid Cells**, terminal cells, which are usually branched, of *Pithophora* (Wittrock).

**helminth'oid** (*ἕλμινς*, a worm, *εἶδος*, resemblance), worm-shaped, vermiform (Heinig).

**helminthospor'oid** (*εἶδος*, resemblance), resembling the genus *Helminthosporium*, Pers.

**hemiangiocar'pic, -pous** (+ ANGIOCARPIC), when the ascocarp (apothecium) is closed at first, but opens when approaching ripeness and discloses the hymenium of crowded asci ; **hemichimonoph'ilous** (*χειμὼν*, winter, *φιλέω*, I love), applied by F. Ludwig to those plants whose above-ground development begins even during the prevalence of frost, as *Ranunculus Ficaria*, Linn. ; **hemichlamyd'eous** (*χλαμὺς*, a cloak), half-coated, as ovules when borne on an inverted symphyllodium in Coniferae (Celakovský) ; **Hemicleistog'amy** (+ CLEISTOGAMY), Knuth's term for the condition of plants whose flowers open slightly ; **hemipe'lic** (*πηλὸς*, clay) rocks which yield a moderate amount of clay detritus, and the plants which affect such localities (Thurmann) ; **hemipsam'mic** (*ψάμμος*, sand), strata which give a moderately porous detritus, with the plants which prefer such places (Thurmann) ; **Hemiplank'ton** (+ PLANKTON), the mingled vegetation of shallow and deep water forms in landlocked pools, etc. (A. F. W. Schimper).

**heteroblas'tic**, add, (2) used by Goebel to express the fact that the adult form of a plant is very unlike the young or larval form ; (3) applied by Pfitzer to those Orchids in which the pseudobulbs consist of a single swollen internode ; the condition is **Heteroblas'ty** ; **heterocar'pinus**, an inferior, or partially inferior fruit, as the acorn ; **Heterodichog'amy**; Engler and Prantl's synonym for DICHOGAMY ; **Heterodi'ode** ( + DIODE), a term to include MACRODIODE and MICRODIODE (Van Tieghem) ; **Heterodisty'ly**, dimorphism, as in *Primula elatior*, Jacq. ; **Heterotristy'ly**, trimorphism, as in *Lythrum Salicaria*, Linn. ; **Heterom'erals**, Bessey's abbreviation for the Heteromerae of Bentham and Hooker, a series of Gamopetalae ; **Heteromorph'ism**, the heteromorphic condition ; **Heteromesog'amy** (*μέσος*, intermediate, *γάμος*, marriage), when individuals vary in the method of fertilization, as (*a*) auto-allogamous, (*b*) homodichogamous, and (*c*) dientomophilous ; **heteroph'agous** (*φάγω*, I eat), applied to Fungi which attack plants not congeneric

(Eriksson); **heterotac'tic** (*τακτικός*, qualified to arrange), with more than one system in the same inflorescence; **Het'erotroph**, employed by Pfeffer to denote a pure saprophyte; **hexacy'clic** (*κύκλος*, a circle), arranged in six whorls; **hexaphylet'ic** (*φυλή*, a tribe), applied to those derivative hybrids which are the product of six forms or species, as in some willow-hybrids.

**histi'oid** (*εἶδος*, resemblance), arachnoid (Heinig).

**Hof** (Germ., a court), (1) the areola of a bordered pit; (2) Rosen's expression for a clear, granule-free space surrounding the nucleus or nucleolus.

**holochlamyd'eous** (*χλαμύς*, a cloak), employed for ovules such as those of *Gingko* when the integuments are practically complete (Čelakovský).

**homoblas'tic**, add (2) used by Goebel to express the fact that the larval and adult forms are practically the same; (3) Pfitzer employs it for those Orchids whose pseudobulbs consist of several internodes, only the terminal bearing developed leaves; **Homodichog'amy** (+ DICHOGAMY), the existence of homogamous and dichogamous individuals in the same species; **homoët'ic**, metamorphic, *cf.* HOMOEOSIS; **Homog'amy**, add; (2) independently coined by G. J. Romanes to express "discriminate isolation"; **Homogen'esis**, **Homog'eny**, the reverse of HETEROGENESIS; the successive generations resembling the parent form; **Homon'ymy**, the possession of the same specific name under another genus; **Homone'meae** (*νῆμα*, a thread), formerly applied to Algae and Fungi (Henslow); **homotac'tic** (*τακτικός*, apt to arrange), when only one system of arrangement prevails in an inflorescence.

**Hon'ey-leaves**, nectaries such as those of *Aquilegia* (Potter).

**Hor'dein**, a special proteid occurring in barley, *Hordeum vulgare*, Linn.

**husk'less**, wanting the usual outer covering, as in certain forms of barley, walnuts, etc.

**Hy'alosomes** (*σῶμα*, a body), colourless granules which do not take up stains.

**Hyb'ridoform** (+ FORM), a hybrid between FINIFORMS (Kuntze); **Hybridopro'liform** (*proles*, offspring), a fertile hybrid of HYBRIDOFORMS (Kuntze).

**Hydras'tin**, an alkaloid found in *Hydrastis canadensis*, Linn.

**Hydrocleistog'amy** (+ CLEISTOGAMY), when flowers do not open in consequence of submersion (Knuth); **Hy'drogams** (*γάμος*, marriage) = CRYPTOGAMS; **Hy'drolyst** = HYDROLIST; **Hy'drolyte**, the substance which undergoes fermentation (Armstrong); **Hydromeg'atherm** (*μέγα*, great, *θέρμη*, heat), Warming's term for a plant which needs much heat and moisture, as the natives of moist tropical regions.

**hydrophylla'ceous**, pertaining to *Hydrophyllum* or its allies.

**Hydroste'reids** (*στερεός*, solid), prosenchymatous thick-walled elements, with conspicuous pits, but without spiral thickening on the walls (Haberlandt); **Hydrotax'is** (*τάξις*, order), creeping from dry to moist situations, as plasmodia (Verworn); **hygroph'ilous**, pertaining to Hygrophytes; **hygroph'orous**, water-bearing, or saturated with it; applied by Spruce to certain Hepaticae.

**Hy'phal Bod'ies**, short thick hyphae in certain Fungi, which produce fructifying hyphae or conidiophores (Thaxter).

**Hyphydrogam'icae** (*ὑπό*, under, *ὕδωρ*, water, *γάμος*, marriage), plants whose flowers are fertilized under water, as *Najas* (Knuth); **Hyphydrog'amy**, the condition specified.

**Hypne'tum**, a plant-association com-

posed of Mosses, especially of *Hypnum*, and its allies.

**Hyp'nocyst** (*κύστις*, a cavity), a large transformed resting-cell in certain Algae (Chodat); **Hyp'nosporange** (+ SPORANGE), a product of the modification of the root of *Botrydium*, a sporangium which produces zoospores after a resting period (Rostafiński).

**Hyp'oblast** = HYPOBLASTUS; **Hypog'yny**, the condition of possessing hypogynous flowers; **Hy'pophyse**, ~ **Cell**, = HYPOPHYSIS.

**hysterogenet'ic** = HYSTEROGENIC.

**Hystrel'la** (*ὑστέρη*, the matrix), a synonym of CARPEL.

**idioandrospor'ous** (*ἴδιος*, peculiar, + ANDROSPORE), when dwarf-males of Oedogoniaceae are produced from zoospores contained in certain cells of neuter individuals (Wittrock); **Idiot'ery** (*τέρας*, a monster), Gubler's term for a monstrosity which is peculiar to the individual; *cf.* TAXITERY.

**Immotiflor'ae** (*immotus*, motionless, *flos, floris*, a flower), Delpino's term for wind-fertilized plants whose flowers are steadily fixed.

**inhib'ited**, used by J. F. Clark for spores, not killed, but whose germination has been prevented by the use of certain solutions.

**inophyl'lous** (*ἴς, ἰνός*, a nerve, *φύλλον*, a leaf), with thread-like veins in the leaf (Heinig).

**in'ops** (Lat., destitute), poor, deficient (Heinig).

**Inotag'mata**, pl. (+ TAGMA), the hypothetical contractile elements of protoplasm (T. W. Engelmann).

**in'quinant** (*inquino*, I stain), stained or staining.

**interspor'al** (*σπορά*, a spore), in a sporangium, situated between the spores (Harper); **interplacen'tal** (+ PLACENTA), between the placentas; applied to vascular bundles which occur in the capsule; *cf.* ANTEPLACENTAL; **intertrop'ic** (+ TROPIC), relating to the torrid zone; within the tropics.

**intracutic'ular** (+ CUTICLE), within the cuticle; applied to parts or organs whose normal position is outside; **intrapal'ear** (+ PALEA), referring to the fertilization of cereals which commonly takes place within the flower, before the exsertion of the anthers; **intrastamin'eal** (+ STAMEN), within the stamens, as the disk of Anacardiaceae.

**Intumes'cence** (*intumescere*, to swell-up), any abnormal swelling on the exterior of plants.

**I'on** (*ἰὸν*, neut. of *ἰών*, p. part. of *εἶμί*, I go), a physical term, defined by J. F. Clark as the division of a molecule; adj. **ion'ic**; **Ioniza'tion**, the partitioning of a molecule; **ioni'zed**, divided into ions.

**Isola'tion** (Fr., isolation, insulation, from *insula*, an island), the prevention of intercrossing between a separated section of a species or kind, and the rest of that species or kind (Romanes).

**Isodi'ode** (+ DIODE), when all the diodes produced are alike (Van Tieghem); **isolat'eral** (*latus*, a side), employed by Heinricher for "central"; ~ **Leaves**, those which possess palisade tissue on both surfaces; **I'somorph** (*μορφή*, shape), similar in external form, but not in essential structure; a mineralogical term; **Isomorph'ism**, the condition described, as exemplified by the outward agreement of purple *Crocus* and *Colchicum*.

**ix'ous** (*ἰξός*, bird-lime), sticky, viscous (Heinig).

**Ja'culator** (Lat., a darter), a hook-like process on the placenta of certain fruits, which aids in the expulsion of the seeds, as in Acanthaceae (Boulger).

**Join'ing**, used by Babington for the point of union of two different parts; a node.

**Jord'anism**, an excessive multiplica-

tion of so-called species, usually regarded as mere varieties which are tolerably constant under cultivation ; the name is derived from Alexis Jordan of Lyons.

**junca'ceous**, junceous, rush-like.

**Karyas'ter** (+ ASTER), the spindle-figure of the nucleus ; **Karyochyle'ma** (χυλός, juice), proposed by Strasburger for ACHROMATIN.

**Kat'astates**, pl. (στατός, a standing), intermediate products of katabolism, during the breaking down of protoplasm (Parker).

**Keel-punc'ta**, pl., nodulated thickenings on one margin of the valves of *Nitzschia* (O'Meara).

**Knor'ria**, formerly a genus of fossil plants, now used for lepidodendroid stems when their cortex has been stripped off to a considerable but variable depth (Scott).

**Knot-stage** = SKEIN in nuclear division.

**labioscop'ic** (+ LABIUM, σκοπέω, I look), employed by Pfitzer for the condition of certain Orchids when the sepals are combined with an extension of the axis, as in *Drymoda*.

**Laboulbenomyce'tes**, Engler's term for Laboulbeniaceae and their allies.

**lamina'rioid** (εἶδος, resemblance), resembling or akin to the genus *Laminaria*.

**lecid'ioid** (εἶδος, resemblance), lecideiform.

**lepra'rioid**, resembling the former genus *Lepraria*.

**leptocen'tric** (+ LEPTOME, *centrum*, the middle), when a vascular bundle has the leptome in the middle, with the hadrome round it (Haberlandt).

**leptoder'matous**, leptodermous ; **Leptogonid'ium** (+ GONIDIUM) = MICROGONIDIUM ; **Leptoxy'lem** (+ XYLEM), the water-conducting tissue of the sporophyte of Mosses ; functional wood (Vaizey).

**Leucoso'mata**, pl. = LEUCOSOMES.

**Li'briform**, a tissue composed of LIBRIFORM cells (Tschirch).

**lichenic'olous** (Lichen, *colo*, I inhabit), dwelling in or on a Lichen.

**Lig'ula**, add, (6) the ovuliferous scale in *Araucaria*, united with the bract, and resembling the Ligule in *Isoëtes* (Potter).

**Limb**, add (3) the margin of the leaf in Mosses when distinct in colour and cell-structure ; **lim'bate**, *limba'tus*, having a margin of the kind stated.

**Limnoplank'ton** (+ PLANKTON), the floating vegetation of freshwater pools or streams.

**Lob'ule**, add (3) a tongue-like structure opposite the scutellum in grasses, the epiblast (Van Tieghem).

**Loc'oform** (*locus*, a place, + FORM), a form which differs from its nearest allies by peculiarities derived from the climate or soil (Kuntze) ; **Locogreg'iform** (*grex*, *gregis*, a flock), a secondary or tertiary RAMIFORM (Kuntze).

**Lu'siform** (*lusus*, a game), a new form, due to cultivation, which reproduces itself by vegetable increase only, and not by seed (Kuntze).

**macrospor'oid** (εἶδος, resemblance), resembling the genus *Macrosporium*, Fries ; **Macrospor'ophore** (+ SPOROPHORE), an organ supporting macrospores.

**mammil'liform** (*forma*, shape), applied to those papillate protuberances on a petal which give it a velvety appearance.

**Man'tle-fi'bres**, A. A. Lawson's term for the fibres of the nuclear-spindle.

**marattia'ceous**, akin to or resembling the genus *Marattia*.

**Med'ioform** (*medius*, middle, + FORM), an intermediate form not due to hybridity (Kuntze) ; **Medioloc'oform** (*locus*, a place), a local MEDIOFORM (Kuntze).

**Megaplan'ogamete** (+ PLANOGAMETE), Brebner's term for a large planogamete, presumably female.

**Mei'ostates** (μείων, less, στατός, a

standing), the intermediate products of metabolism, comprising (*a*) ANASTATES, formed during anabolism, and (*b*) KATASTATES, during katabolism (Parker).

**Mel'anophyll**, the chief colouring matter of Diatoms (Warming, Handbook, Engl. ed., p. 18).

**Menthol'ogist** (*Mentha*, λόγος, discourse), an expert or writer on mints, the genus *Mentha*.

**merenchy'matous**, belonging to or like MERENCHYMA.

**Mesomel'itae**, pl. (*mel*, honey), Huxley's term for a series of Gentianeae which have honey-glands in the central portion of the flower; *cf.* PERIMELITAE; **Mesopet'alum** (πέταλον, a flower-leaf). Pfitzer's term for the LABELLUM of Orchids; **Mesomyce'tes** (μύκης, a mushroom), a group intermediate between Phycomycetes and the higher Fungi (Warming).

**Mes'tome-bun'dle**, a fibro-vascular bundle; ~ **Sheath**, bundle-sheath.

**metabio'tic**, relating to METABIOSIS.

**Metab'olite**, a product of metabolism.

**Metachlamyd'eae** (χλαμύς, a cloak), Engler's term for GAMOPETALAE; **Metader'ma** (δέρμα, a skin), a modified tissue which takes the place of cork in some structures, chiefly of the root, but does not possess the properties of cork (A. Meyer); **Metanthe'sis** (ἄνθησις, flowering), retarded floral development, as opposed to PROANTHESIS (Wittrock); **metatop'ic** (τόπος, a place), refers to imbricate bud-covering which has departed from the course of the normal genetic spiral, by secondary development (Pax).

**Microbacte'ria**, pl. (+ BACTERIUM), minute bacteria; **Microbiol'ogy** (+ BIOLOGY), used by Duclaux for the biology of bacteria and and enzymes; **Microfun'gi** (+ FUNGUS), **Microli'chens** (+ Lichen); **Micropar'asites** (+ PARASITE), minute organisms belonging to their respective categories; **Mi'cron**, a micromillimetre; **Microphytol'ogy** (+ PHYTOLOGY) used chiefly of bacteriology, but also applied to any branch which is entirely dependent on microscopic research.

**micropy'lar**, relating to the MICROPYLE; ~ **Scar**, the spot on the ripe seed occupied by the micropyle (Kerner); **micropylif'erous** (*fero*, I bear) **Tube** = EXOSTOME; **Microspor'ophore** (+ SPOROPHORE), an organ which bears MICROSPORES.

**Mist'oform** (*mistus*, mixed, + FORM), a hybrid or cross from forms which themselves have varied from the original; **Mistopro'liform** (*proles*, offspring), fertile hybrids of MISTOFORMS (Kuntze).

**mni'oid**, add, (2) used by E. Newman as resembling any kind of Moss.

**mon'eroid**, like the genus *Monera* in which the protoplasm forms the whole structureless body of the fully developed organism, which is devoid of a nucleus; a presumed protistoid body.

**Mon'ad**, occasionally used for ZOOSPORE; **monan'dreous**, having but one perfect stamen, as most Orchids (S. Moore); **Monan'dry**, the condition in question; **monocor'mic** (κορμός, a trunk), expressive of those trees which have one main axis bearing lateral branches of bilateral structure (A. H. Burtt); **Monogen'esis** (γένεσις, beginning), non-sexual reproduction; adj. **monogenet'ic**; **Monog'ony** (γόνος, offspring), means the same; **monosi'phonous** (σίφων, a tube), consisting of a single tube as some Algae; monosiphonic.

**Mos'sing**, covering decorticated trunks with moss, to induce the production of renewed bark in *Cinchona* culture.

**Mu'corine**, mucedinous, resembling the genus *Mucor*.

**Mycelia'tion**, taking on the aspect or form of MYCELIUM (A. S. Wilson); **myce'lioid** (εἶδος, resemblance), resembling a mycelium (Archer).

**My'coma** (*μύκης*, a mushroom), the body of a Fungus (A. Braun); **Mycomyce'tes**, the higher Fungi.
**Myxogas'ters**, an Anglicised form of MYXOGASTRES; **Myxophy'ceae** (*φῦκος*, sea-weed), = SCHIZOPHYCEAE; **Myxothallophy'tae** (+ THALLOPHYTE) = MYXOGASTRES.

**na'creous** (Fr., nacre, mother-of-pearl), with pearly lustre (Heinig).
**Nannan'der**, a dwarf-male (Wittrock).
**nau'tiloid** (*εἶδος*, resemblance), like the shell of a nautilus (Heinig).
**navic'ulaeform** (*forma*, shape) = naviculoid.
**Neck**, add, (5) the prolongation of the apex of the perithecium in Pyrenomycetes.
**Nee'dle**, the stiff linear leaf of Coniferae; **doub'le** ~, the specially metamorphosed leaf-organ of *Sciadopitys*.
**neu'trophile** (*φιλέω*, I love), a hybrid word for elements which do not take up either acid or basic stains, as hyalosomes.
**no'dal Plex'us**, the net or transverse girdle of bundles which sometimes exists at a node.
**nostocha'ceous**, resembling *Nostoc* or allied to it (Archer).
**No'viform**, a CULTIFORM of recent origin (Kuntze).
**Nucleochyle'ma** (*χυλός*, juice), Strasburger's term for the fluid which fills the spaces in the LININ.
**Nu'culane** = NUCULANIUM.

**octinu'cleate** (+ NUCLEUS), having eight nuclei (Harper).
**odon'toid** *ὀδούς*, *ὀδόντος*, a tooth, *εἶδος*, resemblance), tooth-like, dentate (Heinig).
**oedogonia'ceous**, pertaining to *Oedogonium* or its allies.
**ol'igarch** (*ἀρχή*, origin), applied to a vascular cylinder, containing but few bundles (Crozier).
**Omphalo'dium**, Kerner's term for HILUM (1); **om'phaloid** (*εἶδος*, resemblance), navel-like, umbilicate (Heinig).
**oogo'nial Tube**, = NECK-CANAL.
**ooplas'mic**, relating to the OOPLASM; **O'oplast**, Kerner's term for OOSPHERE.
**O'ön**, proposed as an equivalent of EGG (P. F. Myles).
**ophryd'eous**, resembling or allied to the genus *Ophrys*.
**orchid'ean**, = ORCHIDEOUS; **Orchidol'ogy** (*λόγος*, discourse), the study of Orchids.
**Or'igin**, employed by Hartog to express the German "Anlage"; *cf.* FUNDAMENT, INCEPT, INCEPTION, PRIMORDIUM, etc.
**orthosper'mous** (*σπέρμα*, a seed), having seeds with endosperm grooved on the ventral side, as in *Carum*.
**Ova'rium**, add, (2) = ARCHEGONIUM (H. Gibson).
**overly'ing**, a suggested rendering of INCUBOUS (Potter).

**pachyder'matous**, = PACHYDERMOUS.
**Palaeobot'anist**, a student or expert in fossil botany.
**Pal'mid**, J. Smith's term for Palms, Cycads and Tree-ferns of palm-like aspect.
**palmogloe'an**, allied to *Palmogloea*, or resembling it (Archer).
**Parachro'matin** (+ CHROMATIN), the same as LININ.
**Parachute'**, sometimes applied to fruits which are readily carried by wind, by means of membranous expansions or pappus, recalling the action of a parachute.
**paracotyle'donary**, (+ COTYLEDON), used of the axis, derived from the anterior inferior segment (quadrant) of the oosphere of *Marsilia* (Vines); **Par'acyst** (*κύστις*, a bag), morphologically an antheridium, which is male in *Pyronema*; **paraste'monal** (*στήμων*, a filament = stamen), employed by Huxley for structures which arise from, or close to, the insertion of the filaments with the corolla.

**parthenogenet'ic**, arising without fertilization.

**Path-point'ers**, defensive protection, such as prickles, etc., against undesirable insect-visitors (Kerner).

**Pauper'culae**, pl. (*pauperculus*, very poor), depauperate generations, as the dwarf-males of *Oedogonium*, etc. (A. Braun).

**Pec'tines**, pl. (*pecten*, a comb), fimbriae on the corolla of some Gentians, constituting the corona (Huxley).

**pelo'ric**, relating to PELORIA (Potter).

**pentaphylet'ic** (*φυλή*, a tribe), used of hybrids which are composed of five strains, five species or forms being represented in the hybrid.

**perian'thial**, relating to the PERIANTH; **pericy'clic Sec'tors**, interruptions of the pericycle of the root in certain Mosses, by tissues of cells whose walls are very slightly thickened (Campbell); **perihadromat'ic** (+ HADROME), surrounding the hadrome.

**peronocar'pic**, probably a misprint for PYRENOCARPIC.

**Pet'aly**, the condition of possessing petals (J. M. Coulter).

**phaenobio'tic** (*βίος*, life), Kuntze's term for that geologic period when plants made their appearance as evidenced by their fossil remains.

**Phanerog'amy**, the condition of PHANEROGAMS.

**Pharmacogno'sy** (*φάρμακον*, a drug, *γνῶσις*, knowledge), the knowledge of the distinctive features of vegetable drugs (E. M. Holmes).

**phe'nicine**, **phenic'eous** (Heinig) = PHOENICEOUS.

**Phloëm-parench'yma**, *cf.* BAST-PARENCHYMA.

**photoph'ilous** (*φιλέω*, I love), C. Schimper's term for sun-loving plants; **photoph'ygous** (*φυγή*, flight); applied to shade plants.

**Phrag'matospore** (*σπορά*, a seed), a multicellular spore, capable of germinating from more than one point (A. Braun).

**phycochroma'ceous** (*χρῶμα*, colour, + aceous), applied to gonidia which are not green (chlorophyllaceous); **Phy'cochrome**, the bluish-green colouring matter of Algae (Bornet); **Phycophy'ta** (*φυτόν*, a plant), Trevisan's name for Characeae.

**Phylloclad'ium**, add, (2) the thalline scale of a Lichen (Lindsay); **Phyl'lula**, H. Gibson's term for that stage in the embryo of vascular plants at which the first leaf and root appear (Parker).

**Phy'to-al'bumin**, see ALBUMIN; **Phytog'amy** (*γάμος*, marriage), cross-fertilization of flowers (A. Gray); **Phytogeogen'esis** (*γῆ*, the earth, *γένεσις*, beginning), the origin of plants in geologic time (Kuntze); **Phytogonid'ium**, (+ GONIDIUM); an immobile gonidium, capable of independent germination (A. Braun); **Phy'toma**, pl. **Phytom'ata**, the vegetative body or substance of all plants (A. Braun); **Phytom'etry**, (*μέτρον*, a measure or standard), a comparison between plants, or the different plans of their growth; **Phytomorph'osis** (*μόρφωσις*, a shaping), any change induced by plants; by Appel used for galls caused by plant parasites; **Phytopalaeontol'ogist** = PALAEOBOTANIST.

**Picnid'ium** = PYCNIDIUM.

**Pi'leola**, add, (4) the plumule in grasses (Van Tieghem).

**placen'tary**, relating to the placenta.

**Plant-plankton** (+ PLANKTON), the same as PHYTOPLANKTON; **Plant'ling**, a small plant, a product of recent germination (S. Moore).

**Plasm-sac** (+ SAC) of Diatoms, a colourless layer of protoplasm forming a lining to the frustule and enclosing the cell-contents (O'Meara); **Plas'mochym** (*χύμα*, that which is poured), the thick

fluid albuminous substance of the cell-body (Strasburger); **Plasmodia'tion**, the assumed softening of the outline of a spore on its germinating (A. S. Wilson); **Plasmodier'esis** (*διαίρεσις*, division), the division of protoplasm, which may be (*a*) akinetic, or (*b*) karyokinetic; **plas'tic Prod'ucts** of katabolism, those which remain an integral part of the organism (Parker).

**pleophylet'ic** (*πλέον*, more, *φυλή*, a tribe), descended from numerous lines, polyphyletic.

**pleurococ'coid** (*εἶδος*, resemblance, like the genus *Pleurococcus*.

**Plug**, a growth of protoplasm which closes the pore-openings in the cells of certain Algae, homologous with the STOPPER of *Ballia* (H. Gibson).

**pluriv'orous** (*voro*, I devour), Dietel's term for those Fungi which inhabit indifferently hosts belonging to widely different orders of plants.

**Pneumatho'dium**, (1) *cf.* PNEUMATODE; (2) an AËRATING ROOT, as in *Taxodium*.

**Pock'et**, of *Lemna*, a hollow in the leaf, whence a new leaf arises (Potter).

**Pol'linide**, a single antheridial corpuscle (Sirodot).

**Polyan'dry**, the state of having many stamens; **pol'yarch** (*ἀρχή*, beginning), when a stele possesses many protoxylem groups; **polycorm'ic** (*κορμός*, a trunk), expressive of such trees as the fastigiate Irish yew, which has a number of erect radial axes (A. H. Burtt).

**polygona'ceous**, allied to, or resembling the genus *Polygonum*.

**polyplas'tic**, applied to septate spores; **Pol'yplast**, add, (2) the multicellular stage of the embryo before the differentiation of cell-layers or organs in Mosses, Ferns, etc. (Parker); adj. **polyplas'tic**, see also POLYBLASTIC; **pol'yspored** = POLYSPOROUS.

**Pos'teriform** (*posterus*, last, + FORM), the late derivative of an ancestral form (Kuntze).

**Potamoplank'ton** (*ποταμός*, a river, + PLANKTON), the floating vegetation of inland waters.

**Prae'form** (+ FORM), an early form, the original ancestral strain (Kuntze).

**prismat'ic Lay'er**, Farmer's term for a layer of cells in *Isoëtes* surrounding the xylem cylinder (Campbell).

**Prochro'matin** (+ CHROMATIN), the substance of nucleoli (Pfitzner); **Progemma'tion** (+ GEMMATION), when stylospores are given off from basidia, new terminal cells being developed from older or basal cells (Nylander).

**prolif'ic Cells**, reproductive cells (Wittrock); **prolifi'ed**, grown out into prolification, as a tuft of leaves from a cone.

**promyce'lial**, relating to a promycelium,

**Prothal'logams**, *Prothallogam'ia* (*γάμος*, marriage), vascular Cryptogams; **prothal'line**, pertaining to a prothallus, or resembling one.

**protoplas'tic**, used by Henfrey for PROTOPLASMIC.

**prop'er Valves** = SPATHE-VALVES.

**Protogonid'ium** (+ GONIDIUM), the first generation of a succession of gonidia (A. Braun); **Pro'totype** (*τύπος*, a type), the assumed ancestral form, from which the descendants have become modified; adj. **prototyp'ic**.

**pseu'do-adven'tive** (+ ADVENTIVE) **Buds**, young branches of Lycopods which have been arrested at a very early stage (Bruchmann); **Pseudochro'matin** (+ CHROMATIN) = PROCHROMATIN; **Pseu'do-gen'us** (+ GENUS), Lindsay's term for a FORM-GENUS; a condition, not an independent genus; **pseu'doparenchy'matous**, possessing symphyogenetic cellular tissue; **pseudop'odal** (*πούς*, *ποδός*, a

foot), resembling a pseudopodium ( Archer ) ; **pseu'do-unicel'lular** ( + UNICELLULAR), apocytial, as *Caulerpa*.

**Pterido'ma** (*πτερὶς*, a fern), the body or substance of a Fern.

**Pulsel'lum** (*pulso*, I beat), a posterior flagellum of a zoospore (Lankester).

**pyrenocar'pic**, relating to a pyrenocarp, or perithecium.

**Pyr'rhophyll** (*πυρρὸς*, flame-coloured, *φύλλον*, a leaf), the colouring matter contained in the Peridineae (Warming).

**Ra'miform** (+ FORM), an extreme modification of GREGIFORM, usually of monophyletic origin (Kuntze).

**ra'phal**, relating to the RAPHE.

**Ra'roform** (*rarus*, infrequent, + FORM), a new form with imperfect connections with its surroundings (Kuntze).

**Resolu'tion** (*resolutio*, an untying), the division of a coenocyte into uninucleate cells (Hartog).

**retina'culate**, possessing RETINACULA.

**rheotac'tic**, adj. of **Rheotax'is** (*τάξις*, order), a synonym of RHEOTROPISM.

**Rhizophyl'la** or **Rhizinophyl'la**, pl. (*φύλλον*, a leaf), the postical bracts of Hepaticae, which bear the rhizoids (Spruce) ; **Rhi'zocorm** (+ CORM), J. Smith's term for the fleshy rhizomes of *Iris*, *Acorus*, etc. ; **rhizop'odous** (*πούς*, *ποδὸς*, a foot), used in the sense of amoeboid.

**Rhodoplas'tid**, the chromatophore of Rhodophyceae (?) (Darbishire).

**sapota'ceous**, relating to or resembling Sapotaceae.

**Sar'cocaul** (*καυλὸς*, a stem), a fleshy-stemmed plant, as the Cacti and many Euphorbias (J. Smith).

**Sat'us** (Lat., a sowing), arising from seed sown ; **Sat'iform** ( + FORM), a NOVIFORM which is reproduced by seed (Kuntze).

**scalar'iform Conjuga'tion**, when the entire algal filament is concerned in the act of conjugation (A. W. Bennett).

**Schistogam'ia** = SCHISTOGAMAE, Characeae (Caruel) ; **schizom'erous** (*μερὸς*, a part), splitting into portions.

**Scleromyce'tes**, pl. (*μύκης*, a mushroom), an obsolete name for the Sphaeriaceae.

**scytone'matous**, allied to the genus *Scytonema* (Archer).

**Sec'tors**, *cf.* PERICYCLIC SECTORS.

**sedimen'tary Yeast**, bottom-yeast.

**se'tose**, add, (2) having setae usually ending in glands (Babington).

**Sheath**, add, (3) the lower, longer portion of the cell-wall in division in *Oedogonium* (Potter).

**Shield**, add, (3) in Coniferae, the thick rhomboid extremity of the cone-scales (Potter).

**Sic'kle**, = DREPANIUM (Potter).

**Sing'uliform** (*singulus*, separate + FORM), a plant in which one organ varies independently of another (Kuntze).

**sipho'neous** (*σίφων*, a tube), applied to Algae composed of one or more tubes.

**sirosiphona'ceous**, allied to *Sirosiphon* (Archer).

**Sobri'niform** (*sobriṇus*, a cousin, + FORM), a VERSIFORM which belongs to a SUBGREGIFORM, as *Rubus moluccanus*, Linn. (Kuntze).

**Sorid'ium**, Hicks's variant of SOREDIUM.

**So'rus-canals**, cavities in the young sporangia of certain Pteridophytes (Campbell).

**Sperma'rium**, H. Gibson's term for ANTHERIDIUM ; **Sperm'ary**, = POLLEN-TUBE ; **spermatoplas'mic**, relating to the SPERMATOPLASM.

**sphae'rioid** (*εἶδος*, resemblance) = SPHAERIACEOUS.

**sphe'noid** (*σφὴν*, a wedge), wedge-shaped solid, cuneate (Heinig).

**Spi'roid**, a delicate thickening in the cells of the tentacles of *Drosera* (Kerner).

**sporid'eus**, bearing spores; acotyledonous (Henslow); **Spor'us**, Lindberg's emendation of SPORA.

**Stem-form**, in Germ. Stammform, the ancestral form (Kuntze).

**stereosperm'ous** (*στπέρμα*, a seed), with solid seed (Heinig).

**Subgreg'iform** (*grex, gregis*, a flock, + FORM), a VERSIFORM which has varied in different localities or countries (Kuntze).

**Ty'piform** (*typus*, a type, + FORM), a constant form, arising either by natural selection or by animal adaptations; its existence is frequently dependent on animals (Kuntze).

**Ver'siform** (*versus*, turned towards, + FORM), a form which varies from the STEM-FORM in several particulars (Kuntze).

"Tyro . . . terminos artis secundum de finitiones sibi habeat perspectos."

LINNAEUS, *Philosophia botanica*, 289.

# APPENDIX A

## SIGNS AND ABBREVIATIONS

⊙ annual, usually monocarpic.
① strictly annual.
② or ☉ biennial.
♃ perennial.
♄ a tree or with a woody trunk.
♂ male; ♀ female; ☿ or ⚥ hermaphrodite (used when it is exceptional).
∞ indefinite, employed when the number is too great to be easily counted, as stamens or ovules.
× hybrid; also used to denote the magnifying power.
! seen by the author: thus *Aotus villosa*, Sm.!, means that the type specimen, or a specimen ticketed by Smith has been verified by inspection; if appended to a collector's number, that is verified, as Burchell 3641 !
* employed in divers senses, as (1) by Linnaeus, De Candolle and others to indicate that a good description or figure will be found at the place cited; (2) when between the specific name and a third appended name, denotes a subspecies; (3) in an index, shows that the genus, species or variety, was ostensibly first published at the place indexed.
† an obscure or doubtful species.
§ section, the division of a genus.
= equals, the sign of a synonym.
° ′ ″ or ′ ″ ‴ have been used for feet, inches, and lines respectively.
μ micromillimeter, the one-thousandth of a millimeter.

The position of the cotyledons of Cruciferae in the seed are denoted thus: o=, accumbent; o‖, incumbent; <<o, conduplicate; o ‖ ‖, spirolobous; o ‖ ‖ ‖ for those of the Diplecolobeae.

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| | |
|---|---|
| char. | character. |
| cm. | centimeter. |
| fem. | *feminea*, female. |
| fl. | *flos* or floret. |
| fr. | *fructus* or fruit. |
| gen. | genus. |
| Hab. | *Habitatio, habitat.* |
| Hb., Herb. | Herbarium, as *Herb. Lugd. Bat.*, the Herbarium of the Leyden University. |
| ined. | *ineditus*, unpublished; it either remains in manuscript or is about to be published. |
| Ic. | *Icon*, pl. *Icones*, figures; *Ic. xyl.*, a woodcut. |
| l.c. | *loco citato*, in the place mentioned; ll. cc. *locis citatis*, in the places mentioned; to avoid repetition of titles. |
| Lin. | a line in measurement, *linea*, the twelfth of an inch. |
| m. | meter or metre. |
| masc. | *masculus*, male. |
| mm. | millimeter, the one thousandth of a meter. |
| n. | *numerus*, number. |
| Nat. Ord. | Natural Order, *Ordo naturalis.* |
| p. | *pagina*, page. |

| | |
|---|---|
| p.p. | *pro parte*, partly ; on the title-page of a thesis it stands for *publice proponit.* |
| sp. | *species ;* spp. two or more species. |
| t. or tab. | *tabula*, plate ; t. sometimes, but rarely, means *tomus*, volume. |
| v.s.c. | *vidi siccam cultam*, I have seen a dried cultivated specimen. |
| v.s.s. | *vidi siccam spontaneam*, I have seen a dried wild specimen. |
| v.v.c. | *vidi vivam cultam*, I have seen a living cultivated specimen. |
| v.v.s. | *vidi vivam spontaneam*, I have seen a living wild specimen. |

Names of authors when long are properly abbreviated by giving the first syllable and the first consonant of the second, as *Lam.* for *Lamarck* ; when there are more of the same name, an initial or other sign is added. The latest list is to be found in Gray's "Botanical Text-book," ed. 6, p. 385-390.

Special signs will be found in many works, but their use is usually explained, as in Eichler's "Bluthendiagramme." For longer lists refer to Candolle (A. P. de) "Systema Vegetabilium," i. p. 12, 13 ; Trattinick (L.) "Synodus" i. p. 13, 14 ; Loudon (J. C.) "Hortus Britannicus," "Encyclopædia of Plants," and "Arboretum" ; Lindley (J.) "Introduction to Botany," ed. 1, p. 422-431. The meaning of chemical signs, such as $CO_2$ for carbon dioxide, $H_2O$, water, and the like, must be obtained from a text-book of chemistry.

# APPENDIX B

## THE PRONUNCIATION OF LATIN AND LATINIZED WORDS

The old or traditional method is as follows :—

| | | | | | |
|---|---|---|---|---|---|
| a short, as in | | fat. | a long, as in | | gave. |
| e | ,, | pet. | e | ,, | evil. |
| i | ,, | thin. | i | ,, | ice. |
| o | ,, | not. | o | ,, | note. |
| u | ,, | tub. | u | ,, | tube. |
| y | ,, | cygnet. | y | ,, | cypress. |

ae, oe, as in feet, ei as in eye, au as in bawl.
c and g hard before a, o, u ; soft before e, i, y ; ch as k.

The modern or continental method :—

| | | | | | |
|---|---|---|---|---|---|
| a short, as in | | ăpart. | a long, as in | | psalm. |
| e | ,, | lend. | e | ,, | vein. |
| i | ,, | thin. | i | ,, | seen. |
| o | ,, | not. | o | ,, | note. |
| u | ,, | full. | u | ,, | rule. |

y short, like German ü, and French u.
ae, oe, ei, practically as in pain.
au as in house.
c and g always hard, as in cut and good.
ch as in Christian.

# APPENDIX C

## THE USE OF THE TERMS "RIGHT" AND "LEFT"

These terms are but seldom required in botanic descriptions, being only used to denote the direction of a twist or spiral. Unfortunately they have been employed in opposite senses, so that the meaning of one author may be completely perverted by his misuse of the correct method. In zoology, where bilateral symmetry is common, these terms are always applied to the limbs or organs of an animal with regard to its axis, and the majority of botanists have carried out the same idea with regard to plants. A spiral may be considered as turning to the right or the left, that is, two spirals may run in contrary directions, but the same spiral may be differently designated according to the position of the observer. The orthodox way regards the observer as being placed within while noting the direction of the twist, as if he were looking south, and recording the apparent passage of the sun from his left towards his right; this, dextrorse, is the common acceptance of "with the sun" or "like the clock hands"; it is also the motion of driving home a screw, which receives its name of "right-handed" from the motion, and not from the aspect of the pitch of its threads.

A few observers have disregarded these considerations, and have placed their point of view outside the spiral. The result of this is to reverse the terms, for a dextrorse climbing plant then seems to pass from right to left, which they then term sinistrorse, as the thread of an ordinary right-handed screw when held up for inspection. If we ascend a spiral staircase constantly bearing to our right, we are describing a right-handed spiral, and the staircase is also dextrorse. Many climbing plants as the Hop and the Honeysuckle take this course, others as the white Convolvulus and Scarlet Runner take the opposite.

Torsion of the corolla is sometimes highly characteristic, as in some genera of Apocyneae and Myrsineae. It has been recommended that a few words should be added to define the position of the observer, as *e centro visum*, or *externe visum*, as the case may be. For a fuller discussion of these points reference should be made to M. Alphonse de Candolle, "La Phytographie," p. 201-208, and Mr C. B. Clarke in the *Journal of the Linnean Society*, xviii. (1881), 468-473.

The botanists who have used DEXTRORSE and SINISTRORSE in the sense defined in this Glossary are A. P. de Candolle and his son Alphonse de Candolle, Alexander Braun, G. W. Bischoff, C. R. Darwin, J. C. Doell, W. P. Hiern, H. von Mohl, C. Naegeli and L. H. Palm; those on the contrary side are G. Bentham, Asa Gray, A. W. Eichler, and Sir J. D. Hooker. Linnaeus's definition is confused by examples, most of which contradict his words, while a correction in his "Errata" nullifies the text; see his "Philosophia botanica," 39, 103 note, 310 (1751).

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LINDLEY (JOHN). An introduction to Botany. Ed. 2. London, 1835. 8vo.

Contains:—Book III. Glossology; or, of the Terms used in Botany, p. 370-432; Index I. Substantives, 563-570. II. Adjectives, 570-580.—Ed. 3, 1839.—Ed. 4, 1848. 2 vols.

KEITH (Rev. PATRICK). A Botanical Lexicon, or Expositor of the Terms, Facts, and Doctrines of the Vegetable Physiology, brought down to the present time. London, 1837. 8vo.

BISCHOFF (GOTTLIEB WILHELM). Wörterbuch der beschreibenden Botanik oder die Kunstausdrücke . . . Lateinisch-deutsch . . . alphabetisch geordnet und erklärt. Stuttgart, 1839. 8vo.—Ed. 2. von J. A. SCHMIDT, ib. 1857. 8vo.

LINDLEY (JOHN). The Elements of Botany . . . being a sixth edition of the "Outline" . . . and a Glossary of Technical Terms. London, 1849. 8vo.

The Glossary of Technical Terms forms Part II., pp. 1-100; it has been in constant use for the present work, and is cited as "Glossary"; 443 woodcuts; no derivations or key to pronunciation given.

HENSLOW (Rev. JOHN STEVENS). A Dictionary of Botanical Terms. London [1849-56?]. 8vo.

Constantly used for this volume; it was partly issued with Maund's "Botanic Garden," but completed by itself: there are 190 small woodcuts in the text. Derivations and accents marked throughout. Reissued with new, undated, title-page in 1858, 1875 and 1882.

HOEFER (FERDINAND). Dictionnaire de botanique pratique. Paris, 1850. 8vo.

COOKE (MORDECAI CUBITT). Manual of Botanic Terms. London [1862]. 8vo. With 293 figures.—Ed. 2. slightly enlarged, ib. [1871]. 8vo. With 307 figures.

GERMAIN, de St Pierre (Ernest). Guide du botaniste, etc. Paris, 1852. 2 vols. 8vo.

Contains :—Seconde partie, Livre cinquième.—Dictionnaire raisonné des mots techniques, français et latin, employés dans les ouvrages de botanique.—Ed. 2. Nouveau dictionnaire de botanique, comprenant la description des familles naturelles, etc. Paris, 1870. 8vo.

I am indebted to this excellent work for the plan of denoting a substantive by a capital letter, and the use of italic type for Latin words.

GRAY (Asa). The Botanical Text-book. (Sixth edition.) Part I. Structural Botany . . . and a Glossary of Botanical Terms. New York and Chicago, 1879. 8vo.

The Glossary occurs at p. 393-442, and may be described as the basis of the present work as regards the definition of terms used in descriptive botany.

STORMONTH (Rev. James). A Manual of Scientific Terms . . . chiefly comprising terms in botany, etc. Edinburgh, 1879. 8vo.—Ed. 2. ib. 1885. 8vo.

The arrangement in paragraphs, and the style of type have been adapted in the present volume from the "Manual."

CROZIER (Arthur Alger). A Dictionary of Botanical Terms. New York, 1892. 8vo.

Confined chiefly to modern terms, of which about 5600 are given, with the pronunciation marked, but no derivations.

HEINIG (Rupert L.). Glossary of the Botanic Terms used in describing Flowering Plants. Calcutta, 1899. 8vo.

An enumeration of about the same extent as the last, but including the names of many orders, and medical terms relating to the action of plants, as anti-dysenteric, dysentery, etc.

# ERRATA

Page, column, and line, are denoted by their initial letters.

P. 3, c. 1, **Achyrophytum** to immediately precede **Acicula.**
,, 10, ,, 1, l. 30, *read* **alter'nate.**
,, 17, ,, 1, ,, 41, ,, **axis.**
,, 19, ,, 2, ,, 4, ,, **Apet'alousness.**
,, 21, ,, 1, ,, 2, ,, *στροφή.*
,, 24, ,, 1, ,, 21, ,, *ἄρτιος*, complete.
,, 25, ,, 2, ,, 3, **asperous** to precede **Assimilation.**
,, ,, ,, ,, ,, 17, *for* Harting *read* Hartig.
,, 26, ,, 1, ,, 36, *read* **At'om.**
,, 30, ,, 2, bottom, *read* **Basit'onus.**
,, 33, ,, 1, l. 4 from foot, *for* nuclei *read* **nucleoli.**
,, ,, ,, 2, ,, 13, *read* **Biog'eny.**
,, 37, ,, 1, ,, 3, ,, **bract'less.**
,, 39, ,, 2, ,, 36, ,, **Calathidiph'orum.**
,, 40, ,, 1, ,, 24, *for* **calcina'rius** *read* **calicina'rius.**
,, ,, ,, 2, ,, 38, ,, **calicina'rius** *read* **calicinia'nus.**
,, 41, ,, ,, ,, 6 from foot, *read* **campylosper'mous.**
,, 42, ,, 1, ,, 41, *read* **canes'cent.**
,, 44, ,, 2, ,, 26, ,, **Carpopod'ium.**
,, 46, ,, 1, ,, 29, 30, *read* **Caul'icle, Caul'icule,** *Caulic'ulus.*
,, 47, ,, 2, headline, *read* **Cellulose.**
,, 48, ,, 1, l. 16, *for* **Cellulo'siole** *read* **Cellulo'side.**
,, ,, ,, ,, ,, 39, *read* **cen'tral.**
,, 52, ,, ,, ,, 28, *for* Crozier *read* Pringsheim.
,, 53, ,, 2, ,, 37, **circummedullary** to precede **circumnutate.**
,, 54, ,, 1, ,, 18, *read* **citrel'lus.**
,, 58, ,, ,, ,, 19, *for* *εἶδος read* *εἶδος.*
,, 73, ,, 2, ,, 48, **deplanate** to follow **depend.**
,, 76, ,, ,, ,, 30, *for* **Dichotcarp'ism** *read* **Dichocarp'ism.**
,, ,, ,, ,, ,, 42, ,, **Del'icoid** *read* **hel'icoid.**
,, ,, ,, ,, ,, 47, ,, **Scorp'ioid** *read* **scorp'ioid.**
,, 90, ,, ,, ,, 44, *read* **epiphloe'odal.**
,, 93, ,, 1, ,, 6, ,, **Ersatzfas'ern.**
,, 99, ,, 2, ,, 13, *for* **fell'ens** *read* **fel'leus.**
,, 107, ,, ,, ,, 40, ,, **galacti'tis** *read* **galacti'tes.**
,, 116, ,, ,, ,, 13, ,, **Gymosper'mia** *read* **Gymnosper'mia.**
,, 117, ,, 1, ,, 23, *read* **gynomonoe'cious.**
,, 124, ,, ,, ,, 35, *for* **hirtill'ous** *read* **hirtel'lous.**
,, 150, ,, 2, ,, 47, *delete* (Crozier).
,, 159, ,, 1, ,, 22, *read* **Micromil'limeter.**
,, ,, ,, ,, ,, 24, ,, millimeter.
,, 168, ,, ,, ,, 16, *for* analogue *read* homologue.

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